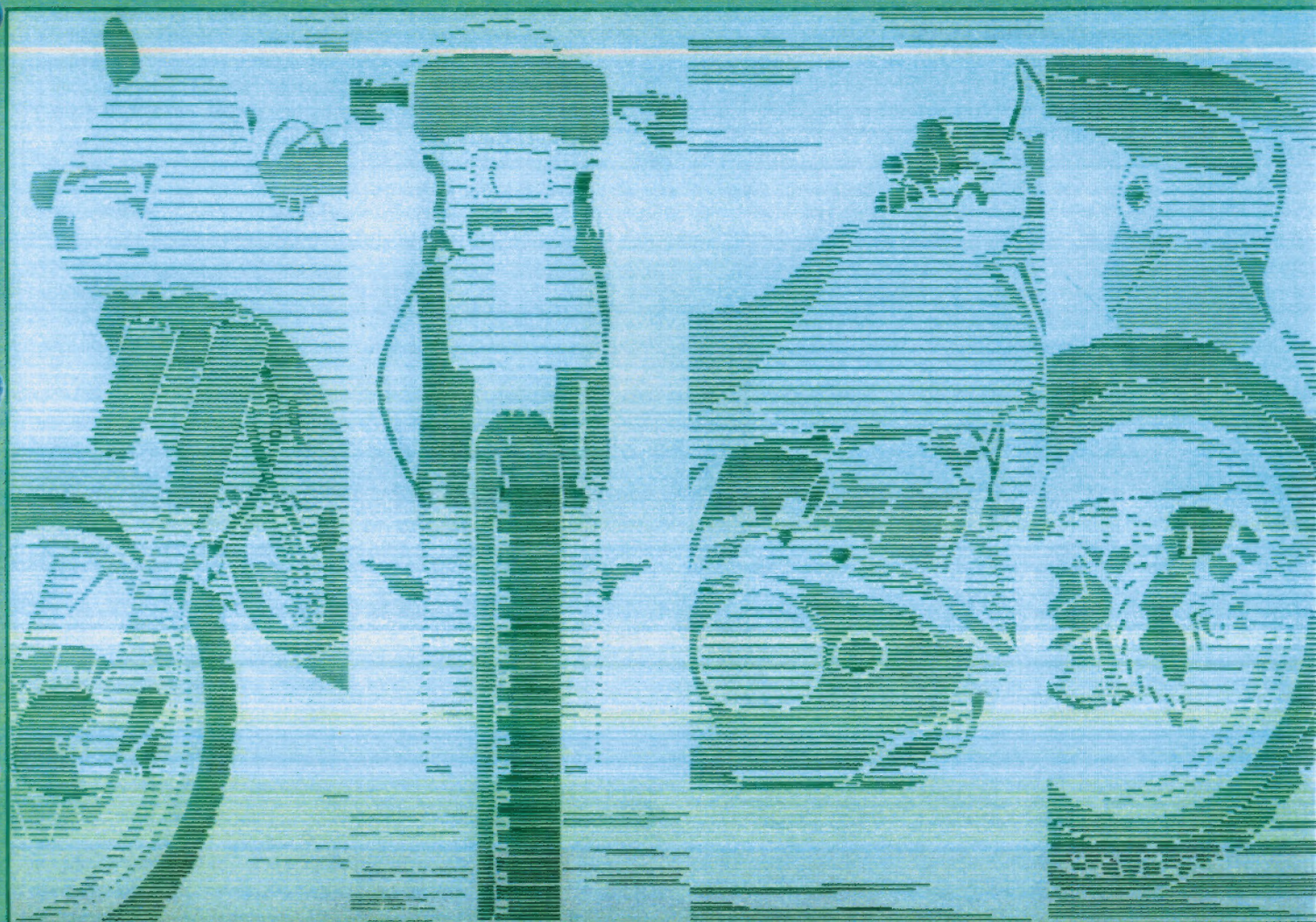


HONDA

SERVICE MANUAL



93 XR650L

Important Safety Notice

⚠ WARNING Indicates a strong possibility of severe personal injury or death if instructions are not followed.

CAUTION: Indicates a possibility of equipment damage if instructions are not followed.

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains some warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** To service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda, might be done or of the possibly hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda, *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service methods or tools selected.

Introduction

This service manual describes the service procedures for the XR650L.

This Model Specific Manual includes every service procedure that is of a specific nature to this particular model. Basic service procedures that are common to other Honda Motorcycles/Motor Scooters/ATVs are covered in the Common Service Manual. This Model Specific Service Manual should be used together with the Common Service Manual in order to provide complete service information on all aspects of this motorcycle.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency and the California Air Resources Board.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Sections 4 through 18 describe parts of the motorcycle, grouped according to locations.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections describe the service procedure through system illustration. Refer to the next page for details on how to use this manual.

If you don't know the source of the trouble, go to section 19 Troubleshooting.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. HONDA MOTOR CO., LTD. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON HONDA MOTORCYCLES.

HONDA MOTOR CO., LTD.
SERVICE PUBLICATION OFFICE

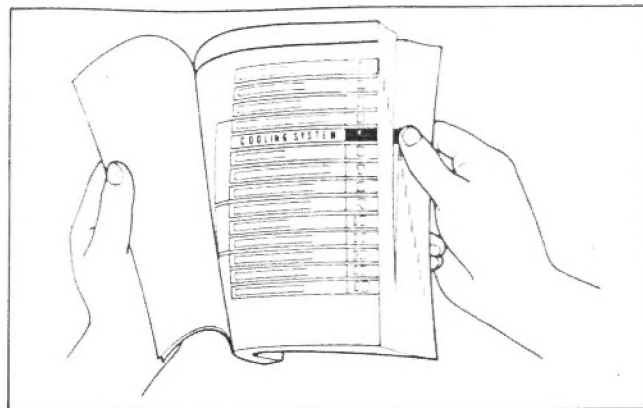
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How to Use This Manual

Finding Information You Need

- This manual is divided into sections which cover each of the major components of the motorcycle.
- To quickly find the section you are interested in, the first page of each section is marked with a black tab that lines up with one of the thumb index tabs before this page.
- The first page of each section lists the table of contents within the section.
- Read the service information and troubleshooting related to the section before you begin working.
- An index of the entire book is provided in the last chapter to directly locate the information you need.



Note on the Explanation Method of This Manual

- The removal and installation of parts are for the most part illustrated by large and clear illustrations that should provide the reader with visual aid in understanding the major point for servicing.
- The system illustrations are augmented by callouts whose numbers or letters indicate the order in which the parts should be removed or installed.
- The sequence of steps represented numerically are differentiated from the ones represented alphabetically to notify the reader that they must perform these steps separately.
- For example, if the steps prior and up to camshaft removal are performed with the engine installed, but the subsequent steps like cylinder head removal require engine removal, the callouts are grouped in numerical and alphabetical orders.
- The illustrations may contain symbol marks to indicate necessary service procedures and precautions that need to be taken. Refer to the next page for the meaning of each symbol mark.
- Also in the illustration is a chart that lists information such as the order in which the part is removed/installed, the name of the part, and some extra notes that may be needed.
- Step by step instructions are provided to supplement the illustrations when detailed explanation of the procedure is necessary or illustrations alone would not suffice.
- Service procedures required before or after the procedure described on that particular page, or inspection/adjustment procedures required following the installation of parts, are described under the title Requisite Service.
- Standard workshop procedures and knowledge covered in the Common Service Manual are abbreviated in this manual.

Symbol mark

System illustration

Detailed description of the procedure

Step sequence (numerals or alphabets)

Part name

Number of parts

Extra notes or precautions related to the service procedure

CYLINDER HEAD/CYLINDER/PISTON

CYLINDER HEAD REMOVAL/INSTALLATION

REQUISITE SERVICE

PROCEDURE	QTY	REMARKS
REMOVAL ORDER		
(1) Cylinder head special nut	12	
(2) Cylinder head mounting bolt	1	
(3) Cylinder head assembly	1	
(4) Gasket	1	
(5) Dowel pin	2	
(6) Camshaft idle gear case bolt	6	
(7) Camshaft idle gear case cover pin	2	
(8) Sealing washer	1	
(9) Camshaft idle gear case	1	
(10) Carburetor insulator	1	

8-4

CYLINDER HEAD/CYLINDER/PISTON

CAMSHAFT IDLE GEAR CASE INSTALLATION

Install the camshaft idle gear case down properly.

NOTE

Without the dowel pins installed properly, the camshaft idle gear may not be able to be installed onto the crankshaft timing gear.

Install the camshaft idle gear case onto the cylinder. When moving the idle gear lightly with the gear case held, the gear case should be lifted up slightly from the cylinder.

Install a new sealing washer and mounting bolts. Tighten bolts in a gradual, as shown.

CYLINDER HEAD NUT/BOLT INSTALLATION

Install the cylinder head special nuts as shown. Do not tighten them yet.

Install the cylinder head mounting bolts. Tighten the special nuts and mounting bolts in a gradual clockwise manner.












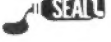


TORQUE

Bolts nut: 30 N·m (3.0 kg-m, 22 ft-lb)
Mounting bolt: 12 N·m (1.2 kg-m, 8 ft-lb)

8-5

Symbols

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use special tool.
	Use optional tool. Use the same procedure you use to order parts.
 10 (1.0, 7)	Torque specification. 10 N·m (1.0 kg-m, 7 ft-lb)
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI # 2 or equivalent).
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI # 2 or equivalent). Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil Japan
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI # 2 or equivalent). Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply a locking agent. Use a middle strength locking agent unless otherwise specified.
	Apply sealant.
	Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

MEMO

1. General Information

1

General Safety	1-1	Lubrication & Seal Points	1-19
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General Safety

Carbon Monoxide

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

⚠ WARNING

- The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

Gasoline

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.

Hot Components

⚠ WARNING

- Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.

Used Engine/Transmission Oil

⚠ WARNING

- Used engine oil (or transmission oil in two-strokes) may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT REACH OF CHILDREN.

Brake Dust

Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠ WARNING

- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.

Brake Fluid

CAUTION

- Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.

Nitrogen Pressure

For shock absorbers with a gas-filled reservoir:

⚠ WARNING

- Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.
- The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.
- Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury if it is heated or pierced.

To prevent the possibility of an explosion, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber reservoir.

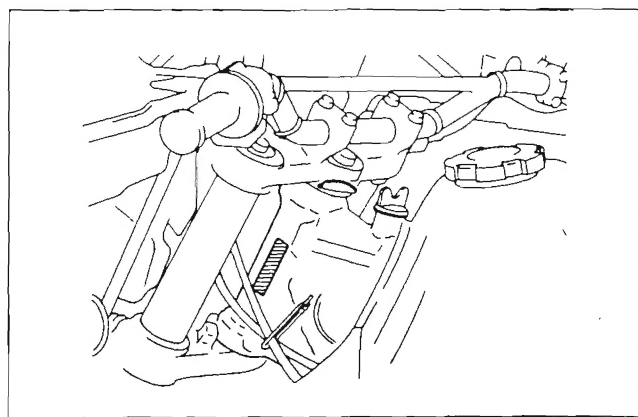
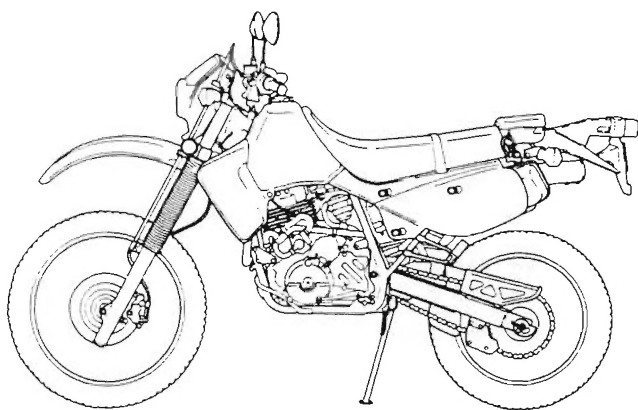
Before disposal of the shock absorber, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber.

Battery Hydrogen Gas & Electrolyte

⚠ WARNING

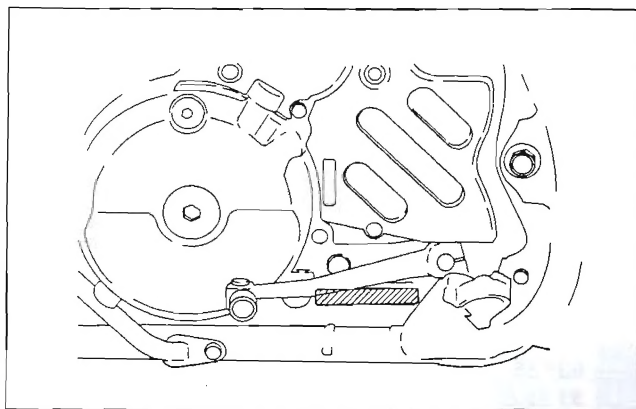
- The battery gives off explosive gases; Keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. **KEEP OUT OF REACH OF CHILDREN.**

Model Identification



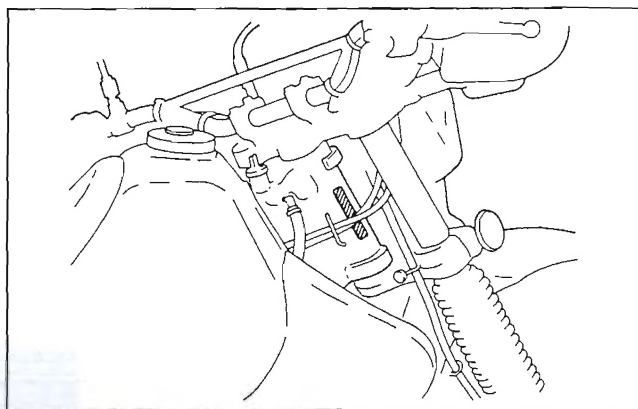
(1) VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) is located on the Safety Certification Label on the left side of the steering head.



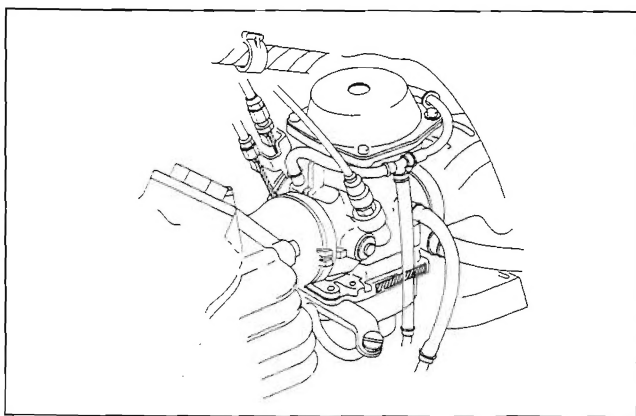
(2) ENGINE SERIAL NUMBER

The engine serial number is stamped on the lower left side of the crankcase.



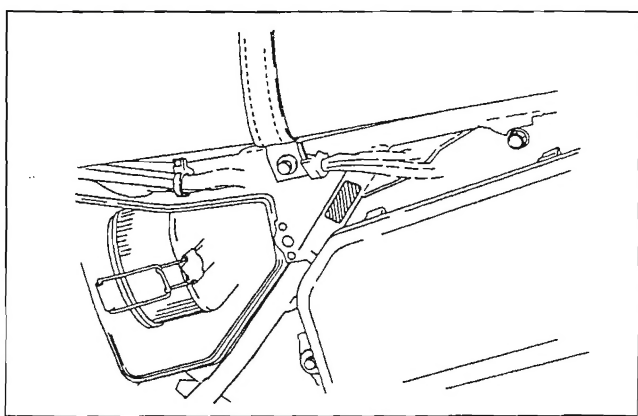
(3) FRAME SERIAL NUMBER

The frame serial number is stamped on the right side of the steering head.



(4) CARBURETOR IDENTIFICATION NUMBER

The carburetor identification number is stamped on the left side of the carburetor body.



(5) COLOR LABEL

The color label is attached to the left rear frame tube as shown. When ordering color-coded parts, always specify the designated color code.

Specifications

Unit: mm (in)

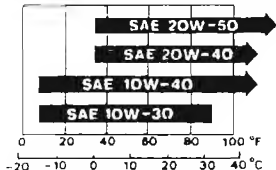
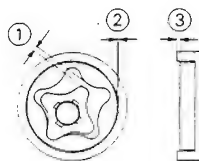
General		
	Item	Specifications
Dimensions	Overall length	2,185 (86.0)
	Overall width	855 (33.7)
	Overall height	1,245 (49.0)
	Wheel base	1,455 (57.3)
	Seat height	950 (37.4)
	Foot peg height	415 (16.3)
	Ground clearance	330 (13.0)
	Dry weight	147 kg (324 lb)
	Curb weight	157 kg (346 lb)
	Maximum weight capacity	149 kg (328 lb)
Frame	Frame type	Semi-double cradle with steel pipe
	Front suspension	Air assist Telescopic fork
	Fork inner tube diameter	43.0 (1.69)
	Fork fluid capacity (per leg)	564 cm ³ (19.1 US oz, 19.8 Imp oz)
	Front wheel travel	295 (11.6)
	Steering head bearing	Tapered roller bearings
	Rear suspension	Pro-link with mono strut swingarm
	Rear wheel travel	280 (11.0)
	Rear damper	Reserve tank type
	Damper/Reservoir gas pressure	1471 kPa (15 kg/cm ² , 213 psi)
	Pressurized gas material	Nitrogen
	Front tire size	3.00-21 51S tube type
	Rear tire size	4.60-18 63S tube type
	Tire tread coad (Dunlop) FR/RR	K850/K850
	Tire tread coad (Bridgestone) FR/RR	—
	Tire tread coad (Metzler) FR/RR	—
	Tire tread coad (Pirelli) FR/RR	—
	Front brake	Hydraulic single disc
	Rear brake	Hydraulic single disc
Engine	Caster angle	63°35'
	Trail	97 (3.8)
	Fuel tank capacity	10.5 liter (2.77 US gal, 2.31 Imp gal)
	Fuel tank reserve capacity	2.3 liter (0.61 US gal, 0.51 Imp gal)
	Bore and stroke	100 x 82 (3.9 x 3.2)
	Displacement	644 cm ³ (39.3 cu-in)
	Compression ratio	8.3 : 1
	Valve train	Silent multi-link chain driven and OHC with rocker arm
	Intake valve opens	5° BTDC
	Intake valve closes	40° ABDC
	Exhaust valve opens	45° BBDC
	Exhaust valve closes	5° ATDC
	Lubrication system	Forced pressure and dry sump
	Oil pump type	Trochoid
	Cooling system	—
	Air filtration	Paper filter (Wet type)
	Crankshaft type	Assembled type 2 main journals
	Engine weight	51.1 kg (113 lb)
	Firing order	—
	Cylinder arrangement	Single cylinder, 15° inclined from vertical
	Cylinder number	—

Unit: mm (in)

General (Cont'd)		
	Item	Specifications
Carburetor	Carburetor type Throttle bore	Constant Velocity single carburetor 42.5 (1.67)
Drive Train	Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st Gear ratio 2nd Gear ratio 3rd Gear ratio 4th Gear ratio 5th Gearshift pattern	Multi-plate, wet Cable operating 5 speeds constant mesh 2.029 (69/34) 3.000 (45/15) 2.666 (32/12) 1.647 (28/17) 1.250 (25/20) 1.000 (23/23) 0.840 (21/25) Left foot operated return system [1-N-2-3-4-5]
Electrical	Ignition system Starting system Charging system Alternator capacity Regulator/rectifier type Lighting system Fuel reserve warning system	CDI unit including the side stand inhibiting and ignition cut out circuits. Electric starter with one-way clutch Triple phase output alternator 186 W/5,000 rpm SCR shorted triple phase, full-wave rectification Battery —

General Information

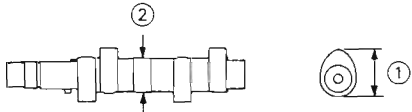
Unit: mm (in)

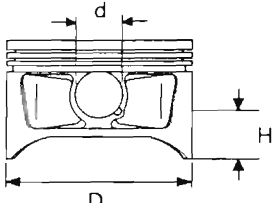
Lubrication		Unit: mm (in)
Item	Standard	Service Limit
Engine oil capacity at draining	1.9 lit (2.0 US qt, 1.7 Imp, qt)	—
at disassembly	2.3 lit (2.4 US qt, 2.0 Imp, qt)	—
at oil filter change	1.95 lit (2.06 US qt, 1.72 Imp, qt)	—
Recommended engine oil	Use Honda GN4 4-stroke oil or equivalent API Service Classification: SE or SG viscosity: SAE 10W-40	
<div><p>OIL VISCOSITIES</p><p>Other viscosity shown in the chart may be used when the average temperature in your riding area is within the indicated range.</p></div>		
Oil pressure at oil pressure switch (80°C/176°F)	—	—
Oil pump rotor tip clearance ①	0.15 (0.006)	0.20 (0.008)
body clearance ②	0.15—0.21 (0.006—0.008)	0.25 (0.010)
end clearance ③	0.02—0.08 (0.001—0.003)	0.12 (0.005)
		

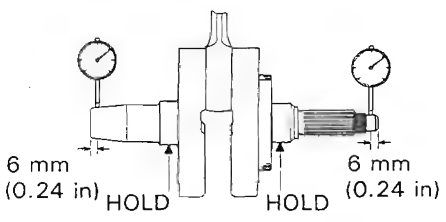
Fuel System			
Carburetor identification number	VE85A	_____	
(California model)	VE86A	_____	
Main jet			
Type	Frame Serial Number	Main Jet/(High Altitude)	
49 State	"PM-000001"—"PM-000958"	# 155/(# 152)	
	After "PM-000958"	# 152/(# 150)	
California	"PM-000001"—"PM-000078"	# 155/(# 152)	
	After "PM-000078"	# 152/(# 150)	
Canada	All products	# 152/(# 150)	
(2, 3)	_____	_____	
(1, 4)	_____	_____	
(Front)	_____	_____	
(Rear)	_____	_____	
Slow jet	# 50	_____	
Jet needle clip position	_____	_____	
Pilot screw initial opening	See page 5-10	_____	
(California model)	_____	_____	
Pilot screw high altitude adjustment	See page 5-11	_____	
Pilot screw final opening	See page 5-10	_____	
Air screw initial opening	_____	_____	
(California model)	_____	_____	
Air screw high altitude adjustment	_____	_____	

Unit: mm (in)

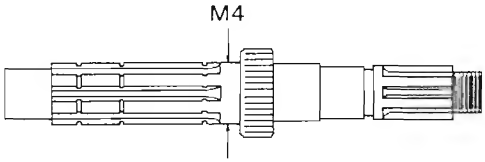
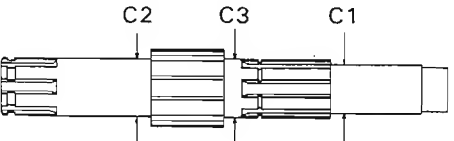
Fuel System (cont'd)		
Item	Standard	Service Limit
Float level	18.5 (0.73)	—
Carburetor vacuum difference	—	—
Base carburetor (For carburetor synchronization)	—	—
Idle speed	1,300 ± 100 rpm	—
Throttle grip free play	2–6 (1/8–1/4)	—
Accelerator pump clearance	—	—
Secondary air supply system	—	—
Air injection control valve vacuum pressure	330 mmHg (13.0 inHg)	—

Cylinder Head		
Cylinder compression at 400 min ⁻¹ (rpm)	65 kPa (6.5 kg/cm ² , 92 psi)	—
Cylinder compression difference	—	—
Valve clearance IN	0.10 ± 0.02 (0.004 ± 0.001)	—
EX	0.12 ± 0.02 (0.005 ± 0.001)	—
Cylinder head warpage	—	0.10 (0.004)
Cam lobe height ① IN	31.101–31.341 (1.2244–1.2339)	30.48 (1.200)
EX	31.072–31.312 (1.2233–1.2328)	30.45 (1.199)
Camshaft runout ②	—	0.03 (0.001)
Camshaft oil clearance	—	—
Camshaft identification marks	—	—
		
Camshaft journal O.D.	—	—
Camshaft holder I.D.	—	—
Valve stem O.D. IN	6.575–6.590 (0.2589–0.2594)	6.56 (0.258)
EX	6.565–6.575 (0.2585–0.2589)	6.55 (0.258)
Valve guide I.D. IN	6.600–6.615 (0.2589–0.2604)	6.63 (0.261)
EX	6.600–6.615 (0.2598–0.2604)	6.63 (0.261)
Stem-to-guide clearance IN	0.010–0.040 (0.0004–0.0016)	0.06 (0.002)
EX	0.030–0.055 (0.0012–0.0022)	0.08 (0.003)
Valve guide projection above cylinder head IN	—	—
EX	—	—
Before guide installation:		
1. Chill the valve guides in the freezer section of a refrigerator for about an hour.		
2. Heat the cylinder head to 100–150°C (212–300°F).		
Valve seat width IN	1.2–1.4 (0.05–0.06)	2.0 (0.08)
EX	1.2–1.4 (0.05–0.06)	2.0 (0.08)
Valve spring free length outer IN	36.0 (1.42)	35.0 (1.34)
outer EX	36.0 (1.42)	35.0 (1.38)
inner IN	35.1 (1.38)	34.1 (1.34)
inner EX	35.1 (1.38)	34.1 (1.34)
Rocker arm I.D. IN	11.500–11.518 (0.4528–0.4535)	11.55 (0.455)
EX	11.500–11.518 (0.4528–0.4535)	11.55 (0.455)
Sub-rocker arm I.D. IN	8.000–8.015 (0.3150–0.3156)	8.05 (0.317)
EX	7.000–7.015 (0.2756–0.2762)	7.05 (0.278)
Rocker arm shaft O.D. IN	11.466–11.484 (0.4514–0.4521)	11.41 (0.449)
EX	11.466–11.484 (0.4514–0.4521)	11.41 (0.449)
Sub-rocker arm shaft O.D. IN	7.969–7.972 (0.3137–0.3138)	7.92 (0.312)
EX	6.969–6.972 (0.2744–0.2745)	6.92 (0.272)
Rocker arm-to-rocker arm shaft clearance	0.016–0.052 (0.0006–0.0020)	0.14 (0.006)
Sub-rocker arm-to-rocker arm shaft clearance	0.028–0.046 (0.0011–0.0018)	0.10 (0.004)

Cylinder/Piston	Item	Standard	Service Limit
	Cylinder I.D.	100.00–100.010 (3.9370–3.9374)	100.12 (3.942)
	Cylinder out of round	—	0.05 (0.002)
	Cylinder taper	—	0.05 (0.002)
	Cylinder warpage	—	0.10 (0.004)
	Piston mark direction	"IN" mark facing toward the intake side	—
	Piston O.D. (D)	99.960–99.980 (3.9354–3.9362)	99.85 (3.931)
	Piston O.D. measurement point (H)	25 (1.0) from the bottom	—
	Piston pin hole I.D. (d)	24.002–24.008 (0.9450–0.9452)	24.03 (0.946)
			
	Cylinder-to-piston clearance	0.020–0.050 (0.0008–0.0020)	0.12 (0.005)
	Piston pin O.D.	23.992–23.996 (0.9446–0.9447)	23.96 (0.943)
	Piston-to-piston pin clearance	0.006–0.016 (0.0002–0.0006)	0.07 (0.003)
	Connecting rod-to-piston pin clearance	0.024–0.049 (0.0009–0.0019)	24.07 (0.948)
	Top ring-to-ring groove clearance	0.015–0.045 (0.0006–0.0018)	0.12 (0.005)
	Second ring-to-ring groove clearance	0.015–0.045 (0.0006–0.0018)	0.12 (0.005)
	Top ring end gap	0.20–0.40 (0.008–0.016)	—
	Second ring end gap	0.35–0.55 (0.014–0.022)	—
	Oil ring (side rail) end gap	0.2–0.7 (0.01–0.03)	—
	Top ring mark	Install with the marked side up	—
	Second ring mark	Install with the marked side up	—

Crankshaft	Item	Standard	Service Limit
	Connecting rod small end I.D.	24.020–24.041 (0.9457–0.9465)	24.07 (0.948)
	Connecting rod big end side clearance	0.050–0.450 (0.002–0.0177)	0.60 (0.024)
	radial clearance	0.006–0.018 (0.0002–0.0007)	0.05 (0.002)
	Crankshaft runout	—	0.10 (0.004)
			
	Crankpin oil clearance	—	—
	Crankpin bearing selection	—	—
	Main journal oil clearance	—	—
	Main journal bearing selection	—	—

Unit: mm (in)

Transmission	Item	Standard	Service Limit
	Transmission gear I.D. : M4	28.020–28.041 (1.1031–1.1040)	28.10 (1.106)
	: M5	28.000–28.021 (1.1024–1.1032)	28.08 (1.106)
	: C1	25.020–25.041 (0.9850–0.9859)	25.10 (0.988)
	: C2	28.020–28.041 (1.1031–1.1040)	28.10 (1.106)
	: C3	28.020–28.041 (1.1031–1.1040)	28.10 (1.106)
	Transmission gear bushing O.D. : M4	27.979–28.000 (1.1015–1.1024)	27.93 (1.100)
	: M5	27.949–27.980 (1.1004–1.1016)	27.90 (1.098)
	: C1	24.984–25.005 (0.9836–0.9844)	24.93 (0.981)
	: C2	27.979–28.000 (1.1015–1.1024)	27.93 (1.100)
	: C3	27.979–28.000 (1.1015–1.1024)	27.93 (1.100)
	Transmission gear bushing I.D. : M4	25.020–25.041 (0.9850–0.9859)	25.10 (0.988)
	: C1	20.020–20.041 (0.7882–0.7890)	20.01 (0.788)
	: C2	25.020–25.041 (0.9850–0.9859)	25.10 (0.988)
	: C3	25.020–25.041 (0.9850–0.9859)	25.10 (0.988)
	Gear-to-bushing clearance at M5 gear	0.020–0.072 (0.0008–0.0028)	0.10 (0.004)
	at C1 gear	0.015–0.057 (0.0006–0.0022)	0.10 (0.004)
	at M4, C2 gear	0.020–0.062 (0.0008–0.0024)	0.11 (0.004)
	Mainshaft O.D. at M4 gear	24.972–24.993 (0.9831–0.9840)	24.92 (0.981)
			
	Countershaft O.D. at C1 gear	19.980–19.993 (0.7866–0.7871)	19.94 (0.785)
	at C2 gear	24.972–24.993 (0.9831–0.9840)	24.92 (0.981)
	at C3 gear	24.959–24.980 (0.9826–0.9835)	24.92 (0.981)
			
	Gear-to-shaft clearance	—	—
	Gear bushing-to-shaft clearance at C1 gear	0.027–0.061 (0.0011–0.0024)	0.10 (0.004)
	at M4, C2, C3, gear	0.027–0.069 (0.0011–0.0027)	0.10 (0.004)
	Shift fork claw thickness : L	4.930–5.000 (0.194–0.197)	4.5 (0.18)
	: C	4.930–5.000 (0.194–0.197)	4.5 (0.18)
	: R	4.930–5.000 (0.194–0.197)	4.5 (0.18)
	Shift fork I.D. : L	14.000–14.018 (0.5512–0.5519)	14.05 (0.553)
	: C	14.000–14.015 (0.5512–0.5518)	14.05 (0.553)
	: R	14.000–14.018 (0.5512–0.5519)	14.05 (0.553)
	Shift fork shaft O.D. : L	13.966–13.984 (0.5498–0.5506)	13.90 (0.547)
	: C	13.966–13.984 (0.5498–0.5506)	13.90 (0.547)
	: R	13.966–13.984 (0.5498–0.5506)	13.90 (0.547)

General Information

Unit: mm (in)

Clutch System			
Item	Standard	Service Limit	
Clutch lever free play	10–20 (3/8–3/4)	—	—
Recommended clutch fluid	—	—	—
Clutch master cylinder I.D.	—	—	—
Clutch master piston O.D.	—	—	—
Clutch outer I.D.	27.000–27.021 (1.0630–1.0638)	27.05 (1.065)	—
Clutch outer guide O.D.	26.959–26.980 (1.0614–1.0622)	26.91 (1.059)	—
I.D.	21.990–22.040 (0.8657–0.8677)	22.05 (0.868)	—
Mainshaft O.D. at clutch outer guide	21.967–21.980 (0.8648–0.8654)	21.93 (0.863)	—
Oil pump drive sprocket I.D.	—	—	—
Clutch spring free height	—	—	—
Clutch spring free length	44.7 (1.76)	43.1 (1.70)	—
Clutch disc thickness	2.92–3.08 (0.115–0.121)	2.6 (0.10)	—
Clutch plate warpage	—	0.15 (0.006)	—
Centrifugal clutch drum I.D.	—	—	—
bushing O.D.	—	—	—
Centrifugal clutch center guide I.D.	—	—	—
O.D.	—	—	—
Centrifugal clutch center guide collar height	—	—	—
Centrifugal clutch weight lining thickness	—	—	—
Centrifugal clutch spring free length	—	—	—
Clutch lining thickness	—	—	—
Crankshaft O.D. at clutch center	—	—	—

Cooling System		
Coolant capacity (Radiator and engine)	—	—
(Reserve tank)	—	—
Radiator cap relief pressure	—	—
Thermostat begins to open	—	—
Thermostat fully open	—	—
Thermostat valve lift	—	—

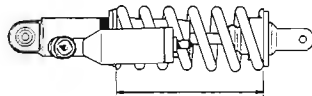
Drive Train		
Recommended final drive oil	—	—
Final drive gear oil capacity at disassembly	—	—
at draining	—	—
Final drive gear backlash	—	—
Ring gear-to-stop pin clearance (A)	—	—
Stop pin shim	—	—
Ring gear spacer	—	—
Pinion spacer	—	—
Output gear backlash	—	—
Output gear I.D.	—	—
Output gear bushing O.D.	—	—
I.D.	—	—
Output drive shaft O.D.	—	—
Output gear damper spring free length	—	—
Output shaft adjustment shim	—	—
Countershaft drive shaft adjustment shim	—	—



Unit: mm (in)

Wheels/Tires		
Item	Standard	Service Limit
Minimum tire thread depth (FR)	—	3.0 (0.12)
(RR)	—	3.0 (0.12)
Cold tire pressure Up to 90 kg (200 lb) load (FR)	150 kPa (1.50 kg/cm ² , 22 psi)	—
Up to 90 kg (200 lb) load (RR)	150 kPa (1.50 kg/cm ² , 22 psi)	—
Up to maximum weight capacity (FR)	150 kPa (1.50 kg/cm ² , 22 psi)	—
Up to maximum weight capacity (RR)	150 kPa (1.50 kg/cm ² , 22 psi)	—
Front and rear axle runout	—	0.2 (0.01)
Front and rear wheel rim runout (Radial)	—	2.0 (0.08)
(Axial)	—	2.0 (0.08)
Front wheel hub-to-rim distance	20.25 (0.797)	—
Front wheel hub standard surface	—	—
Rear wheel hub-to-rim distance	19.0 (0.75)	—
Rear wheel hub standard surface	—	—
Wheel balance weight Front/Rear	—	—
Drive chain slack	35–45 (1-3/8 – 1-3/4)	—
Drive chain size/link (DID)	DID520V8/110LE	—
(RK)	RK520MOZ6/110LE	—

Front Suspension		
Fork spring free length	576.0 (22.68)	570 (22.4)
Fork spring free length A	—	—
B	—	—
Fork spring direction	With the taper end facing down	—
Fork tube runout	—	0.2 (0.01)
Recommended fork oil	Fork Fluid	—
Fork oil level	145 (5.7)	—
Fork oil level (R)	—	—
(L)	—	—
Fork oil capacity	564 cc (19.1 US oz, 19.8 Imp oz)	—
Fork oil capacity (R)	—	—
(L)	—	—
Fork air pressure	0 kPa	—
Steering bearing preload	1.1–1.6 kg	—

Rear Suspension		
Shock absorber spring free length	225.3 (8.87)	223.1 (8.78)
Shock absorber spring free length (A)	—	—
(B)	—	—
Damper gas pressure	1471 kPa (15 kg/cm ² , 213 psi)	—
Damper compressed gas	Nitrogen	—
Damper rod compressed force at 10 mm (0.4 in) compressed	25.5 kg (56.22 lb)	—
Damper drilling point	—	—
Shock absorber spring installed length	—	—
(Standard)	200.3 (7.89)	—
(Adjustable range):	195–205 (7.7–8.1)	—
	With the taper end facing down	—
Shock absorber spring direction	—	—
Recommended shock absorber oil	—	—
Shock absorber oil capacity	—	—
air pressure	—	—



Brakes		Standard	Service Limit
Front brake fluid		DOT 4	—
brake lever free play		—	—
brake pad wear indicator		—	to the groove ①
			
brake disc thickness		4.0 (0.16)	3.5 (0.14)
brake disc runout		—	0.3 (0.01)
master cylinder I.D.		12.700–12.743 (0.5000–0.5017)	12.75 (0.502)
master piston O.D.		12.657–12.684 (0.4983–0.4994)	12.64 (0.498)
caliper cylinder I.D.		27.000–27.050 (1.0630–1.0650)	27.06 (1.065)
caliper cylinder I.D. (Upper)		—	—
(Lower)		—	—
caliper piston O.D.		26.900–26.950 (1.0591–1.0610)	26.85 (1.057)
caliper piston O.D. (Upper)		—	—
(Lower)		—	—
brake drum I.D.		—	—
brake lining thickness		—	—
Rear brake fluid		DOT4	—
brake pedal height		—	—
brake pedal free play		—	—
brake pad wear indicator		—	to the groove ②
			
brake disc thickness		5.0 (0.20)	4.0 (0.16)
runout		—	0.4 (0.02)
master cylinder I.D.		12.700–12.743 (0.5000–0.5017)	12.76 (0.502)
master piston O.D.		12.657–12.684 (0.4983–0.4994)	12.63 (0.497)
caliper cylinder I.D.		27.000–27.050 (1.0630–1.0650)	27.06 (1.065)
caliper piston O.D.		26.935–26.968 (1.0604–1.0617)	26.91 (1.059)
brake drum I.D.		—	—
brake lining thickness		—	—

Battery/Charging System		
Alternator rated output	186 W/5,000 rpm	—
Alternator charging coil resistance (At 20°C/68°F)	0.2–1.2 Ω	—
Regulator/rectifier regulated voltage/amperage	14.7–15.5 V/13 A at 5,000 rpm	—
Battery capacity	12 V–8 Ah	—
Battery specific gravity (Fully charging)	—	—
(Needs charging)	—	—
Battery charging rate (Normal)	0.9 A x 5–10 h	—
(Quick)	4.0 A/1.0 h	—
Battery voltage (Fully charged 20°C/68°F)	13.0–13.2 V	—
(Needs charging 20°C/68°F)	Below 12.3 V	—
Alternator lighting coil resistance (At 20°C/68°F)	—	—
AC regulator regulated voltage (With analog type)	—	—
(With digital type)	—	—

Unit: mm (in)

Starting System		
Starter driven gear O.D.	57.755–57.768 (2.2738–2.2743)	57.66 (2.270)
Starter clutch outer I.D.	74.414–74.440 (2.9297–2.9307)	74.46 (2.931)
Starter motor brush spring tension	920 ± 140 g (32.4 ± 4.9 oz)	—
brush length	12.5 (0.49)	6.5 (0.26)

Ignition System		
Item	Standard	Service Limit
Spark plug (Standard)	DPR8EA-9 (NGK)	—
(For cold climate/below 5°C/41°F)	X24EPR-U9 (NIPPONDENSO)	—
(For extended high speed riding)	DPR7EA-9 (NGK)	—
	X22EPR-U9 (NIPPONDENSO)	—
	DPR9EA-9 (NGK)	—
	X27EPR-U9 (NIPPONDENSO)	—
Spark plug gap	0.8–0.9 (0.031–0.035)	—
Ignition timing "F" mark	8° BTDC/1,300 ± 100 rpm	—
Advance start	8°/2,300 rpm	—
stop	28°/4,000 rpm	—
Full advance	28° BTDC at 4,000 rpm	—
Alternator exciter coil resistance (At 20°C/68°F)	—	—
Ignition coil resistance (Primary: at 20°C/68°F)	0.19–0.23 Ω	—
(Secondary with plug cap)	6.5–9.7 kΩ	—
(Secondary without plug cap)	2.8–3.4 kΩ	—
Pulse generator resistance (At 20°C/68°F)	423–517 Ω	—

Lights/Meters/Switches		
Main fuse	20 A	—
Fuse	10 A x 3	—
Headlight (high/low beam)	12 V–60/55 W	—
Tail/brakelight	12 V–3/32 CP	—
License light	—	—
Position light bulb	—	—
Front turn signal/running light	—	—
Front turn signal light	12 V–32 CP x 2	—
Rear turn signal light	12 V–32 CP x 2	—
Instrument lights	12 V–2 CP	—
Oil pressure warning indicator	—	—
Tail/brakelight warning indicator	—	—
Side stand warning indicator	12 V–1 CP	—
Low fuel indicator	—	—
Coolant temperature indicator	—	—
Oil temperature indicator	—	—
High beam indicator	12 V–1 CP	—
Turn signal indicator	12 V–2 CP	—
Neutral indicator	12 V–2 CP	—
Reverse indicator	—	—
Overdrive indicator	—	—
Oil temperature sensor resistance	—	—
Fuel unit resistance (at full level)	—	—
(at low level)	—	—
Fuel pump flow capacity (min./minute)	—	—
Coolant temperature sensor resistance	—	—
Fan motor switch	Starts to close (ON)	—
	Stops to open (OFF)	—

Torque Values

Standard Fasteners Type	Torque	Fasteners Type	Torque
	N·m (kg-m, ft-lb)		N·m (kg-m, ft-lb)
5 mm hex bolt and nut	5 (0.5, 4)	5 mm screw	4 (0.4, 3)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 7)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	9 (0.9, 7)
10 mm hex bolt and nut	35 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex bolt and nut	55 (5.5, 40)	8 mm flange bolt and nut	27 (2.7, 20)
		10 mm flange bolt and nut	40 (4.0, 29)

- Torque specifications listed below are for important fasteners.
- Others should be tightened to standard torque values listed above.

- Notes:
1. Apply sealant to the threads.
 2. Apply a locking agent to the threads.
 3. Apply molybdenum disulfide oil to the threads and flange surface.
 4. Left hand threads.
 5. Stake.
 6. Apply oil to the threads and flange surface.
 7. Apply clean engine oil to the O-ring.
 8. Torque wrench scale reading using a special tool.
 9. Apply grease to the threads and flange surface.
 10. UBS bolt.
 11. U-nut.
 12. Alock bolt. Do not reuse.

Engine	Item	Q'ty	Threads dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Lubrication System:					
	Crankcase drain plug	1	12	25 (2.5, 18)	
	Oil filter cover bolt	3	6	12 (1.2, 9)	
	Down tube drain plug	1	12	25 (2.5, 18)	
	Oil strainer nut	1	27	55 (5.5, 40)	
	Oil outlet pipe flare nut	1	16	40 (4.0, 29)	
	Oil outlet joint hose flare nut	1	18	40 (4.0, 29)	
	Oil inlet hose flare nut	1	14	40 (4.0, 29)	
Cylinder head/cylinder/piston:					
	Spark plug	1	12	17 (1.7, 12)	
	Cylinder head cover bolt (8 mm)	1	8	23 (2.3, 17)	Note 10
	(6 mm)	1	6	12 (1.2, 9)	
	(6 mm small head)	11	6	10 (1.0, 7)	
	Rocker arm shaft	2	14	27 (2.7, 20)	Note 2
	Sub-rocker arm shaft (IN)	2	14	27 (2.7, 20)	Note 2
	(EX)	2	12	23 (2.3, 17)	Note 2
	Valve adjusting screw lock nut	4	8	25 (2.5, 18)	
	Cam sprocket bolt	2	7	20 (2.0, 14)	Note 2
	Cylinder head bolt	6	9	36 (3.6, 26)	Note 6
	Oil pass pipe stay bolt	1	8	18 (1.8, 13)	
	Cylinder bolt	4	10	50 (5.0, 36)	Note 6
Clutch/gearshift linkage:					
	Right crankcase cover bolt/nut	11	6	12 (1.2, 9)	
	Clutch lock nut	1	18	120 (12.0, 87)	Note 5, 6
	Primary drive gear nut	1	18	110 (11.0, 80)	
	Gearshift cam bolt	1	6	12 (1.2, 9)	Note 2
	Stopper arm bolt	1	8	25 (2.5, 18)	
	Gearshift pedal pinch bolt	1	6	12 (1.2, 9)	Note 12

Engine (cont'd)				
Item	Q'ty	Threads dia. (mm)	Torque N·m (kg·m, ft·lb)	Remarks
Crankcase/crankshaft/transmission:				
Neutral switch	1	—	12 (1.2,9)	
Crankcase bolt	11	6	12 (1.2,9)	
Center shift fork bolt	1	7	15 (1.5,11)	
Mainshaft ball bearing stopper plate bolt	1	8	25 (2.5,18)	
Alternator:				
Left crankcase cover bolt	7	6	12 (1.2,9)	
Flywheel bolt	1	12	125 (12.5,90)	Note 6
Starter clutch:				
Starter one-way clutch torx bolt	6	8	30 (3.0,22)	Note 2
Starter gear cover	5	6	12 (1.2,9)	

Frame				
Item	Q'ty	Threads dia. (mm)	Torque N·m (kg·m, ft·lb)	Remarks
Frame/body panels:				
Side stand pivot: bolt	1	10	10 (1.0,7)	
: nut	1	10	40 (4.0,29)	Note 11
Footpeg bracket (Right): bolt	1	10	65 (6.5,47)	Note 12
: nut	1	10	65 (6.5,47)	Note 11
Exhaust system:				
Muffler band bolt	2	8	20 (2.0,14)	
Muffler mounting bolt: Front	1	8	35 (3.5,25)	
: Rear	1	8	35 (3.5,25)	
Exhaust pipe joint nut	4	8	17 (1.7,12)	
Exhaust pipe protector bolt	2	6	18 (1.8,13)	
Fuel tank:				
Fuel valve lock nut	1	18	27 (2.7,20)	
Engine mounting:				
Engine hanger bracket: 8 mm	6	8	27 (2.7,20)	
: 10 mm	5	10	50 (5.0,36)	
Steering:				
By-starter lever pivot bolt	1	6	9 (0.9,6)	
Handlebar upper holder bolt	4	8	27 (2.7,20)	
Steering stem nut	1	24	118 (11.8,85)	
Steering bearing adjustment nut	1	26	1.0 (0.1,0.7)	
Fork top bridge	4	8	28 (2.8,20)	
Fork bottom bridge	2	8	33 (3.3,24)	
Fork bottom bolt	2	14	35 (3.5,25)	Note 2
Fork cap bolt	2	39	23 (2.3,17)	
Fork damper lock nut	2	10	20 (2.0,14)	
Fork bottom piece retainer	2	22	4.5 (0.45,3.3)	
Wheels:				
Front axle	1	16	87 (8.7,63)	
Front axle holder nut	4	6	12 (1.2,9)	Note 11
Rear axle nut	1	16	90 (9.0,65)	Note 11
Driven sprocket mounting nut	6	10	64 (6.4,46)	Note 11
Front hub cover	4	4	1.5 (0.15,1.1)	Note 2

General Information

Frame (cont'd)				
Item	Q'ty	Threads dia. (mm)	Torque N·m (kg·m, ft·lb)	Remarks
Rear suspension:				
Swingarm pivot nut	1	10	90 (9.0,65)	Note 11
Shock absorber mounting bolt: Upper	1	10	45 (4.5,33)	
: Lower	1	10	35 (3.5,25)	
Shock absorber spring adjuster lock nut	1	56	90 (9.0,65)	
Shock arm bolt: Swingarm side	1	12	70 (7.0,51)	
Shock link: Frame side	1	10	55 (5.5,40)	
: Shock arm side	1	10	45 (4.5,33)	
Brakes:				
Front caliper bracket mounting bolt	2	8	31 (3.1,22)	Note 12 Note 12
Brake hose oil bolt	4	10	35 (3.5,25)	
Caliper pin bolt: Flange bolt (front)	1	8	23 (2.3,17)	
: Socket bolt (rear)	1	8	28 (2.8,20)	
: Inside hex head bolt	2	8	13 (1.3,9)	
Brake pad pin	2	10	18 (1.8,13)	
Brake pad pin plug	2	10	3 (0.3,2.2)	
Brake caliper bleed valve	2	8	6 (0.6,4.3)	
Brake disc bolt: Front	4	8	37 (3.7,27)	
: Rear	4	8	42 (4.2,30)	
Brake lever pivot nut/bolt	2	6	6 (0.6,4.3)	
Front master cylinder holder bolt	2	6	12 (1.2,9)	
Front master cylinder reservoir cap screw	2	4	1.5 (0.15,1.1)	
Rear master cylinder mounting bolt	2	6	15 (1.5,11)	
Rear brake disc cover bolt	2	6	12 (1.2,9)	
Rear brake hose guide screw	2	5	4 (0.4,2.9)	

Tools

- Refer to section 1, Ball Bearing Replacement, of the Common Service Manual.

Description	Tool Number	Alternate Tool	Tool Number	Refer Section(s)
Float level gauge	07401-0010000			5
Clutch center holder	07724-0050001			7
Gear holder	07724-0010100			7
Attachment, 28 x 30 mm	07946-1870100			7
Pilot, 12 mm	07746-0040200			7
Cam chain tensioner holder	07973-MG30003			8
Valve spring compressor	07757-0010000			8
Valve guide remover, 6.6 mm	07742-0010200			8
Valve guide reamer	07984-ZE20001	Valve guide reamer	07984-ZE2000B	8
Valve guide cutter holder, 6.6 mm	07781-0010201			8
Valve seat cutter:				
IN 40.0 mm (45°)	07780-0010500			8
EX 35.0 mm (45°)	07780-0010400			8
Flat cutter: IN 38.5 mm (32°)	07780-0012400			8
EX 35 mm (32°)	07780-0012300			8
Interior cutter:				
IN/EX 37.5 mm (60°)	07780-0014100			8
Universal bearing puller	07631-0010000			10
Bearing puller claw	07931-MK20100			10
Bearing remover shaft	07746-0060100			10
Needle race remover	07GMC-MK50100			10
Bearing remover	07936-MK50100			10
Remover handle	07936-KC10100			10
Remover sliding weight	07741-0010201			10
Driver	07749-0010000			7, 10
Attachment, 72 x 75 mm	07746-0010600			10
Pilot, 35 mm	07746-0040800			10
Attachment, 62 x 68 mm	07746-0010500			10
Attachment, 52 x 55 mm	07746-0010400			10
Pilot, 25 mm	07746-0040600			10
Attachment, 42 x 47 mm	07746-0010300			10
Pilot, 20 mm	07746-0040500			10
Attachment, 78 x 90 mm	07GAD-SD40101			10
Pilot, 40 mm	07746-0040900			10
Attachment, 32 x 35 mm	07746-0010100			10
Crankcase assembly tool	07931-KF00000			10
—puller shaft	07931-ME40000			10
—assembly collar	07931-KF00100			10
—thread adaptor	07931-KF00200			10
Attachment I.D., 35 mm	07746-0030400			10

General Information

Description	Tool Number	Alternate Tool	Tool Number	Refer Section(s)
Spanner C, 5.8 x 6.1 mm	07701-0020300			11, 12
Bearing remover shaft	07746-0050100			11, 12
Bearing remover head, 17 mm	07746-0050500			11, 12
Driver	00749-0010000			11, 12
Attachment, 42 x 47 mm	07746-0010300			11, 12
Attachment, 32 x 35 mm	07746-0010100			11, 12
Pilot, 17 mm	07746-0040400			11, 12
Retainer wrench	07GMA-KS70100			11
Seal driver attachment	07947-KF00100			11
Slider weight	07947-KA50100			11
Extension bar	07716-0020500			11
Steering stem nut wrench	07916-KA50100			11
Ball race remover	07953-MA00000			11
Steering stem driver	07946-4300101			11
Retainer wrench A	07710-0010100			12
Retainer wrench body	07710-0010401			12
Attachment, 37 x 40 mm	07746-0010200			12
Attachment, 24 x 26 mm	07746-0010700			12
Pilot, 20 mm	07746-0040500			12
Needle bearing remover	07931-MA70000	Bearing remover set	07936-3710001	12
Driver shaft	07946-MJ00100			12
Spherical bearing driver	07946-KA30200			12
Bearing driver base	07HMF-KS60100			12
Snap ring pliers	07914-3230001			13
Flywheel holder	07725-0040000			14, 16
Rotor puller	07733-0020001			14, 16
Torx bit (T40)	07703-0010100			16
Digital multimeter (KOWA)	07741-0020000	-KS-AHM-32-003 (U.S.A. only)		14, 15, 16
Analogue tester (SANWA)	07308-0020001			14, 15, 16
Analogue tester (KOWA)	TH-5H			14, 15, 16

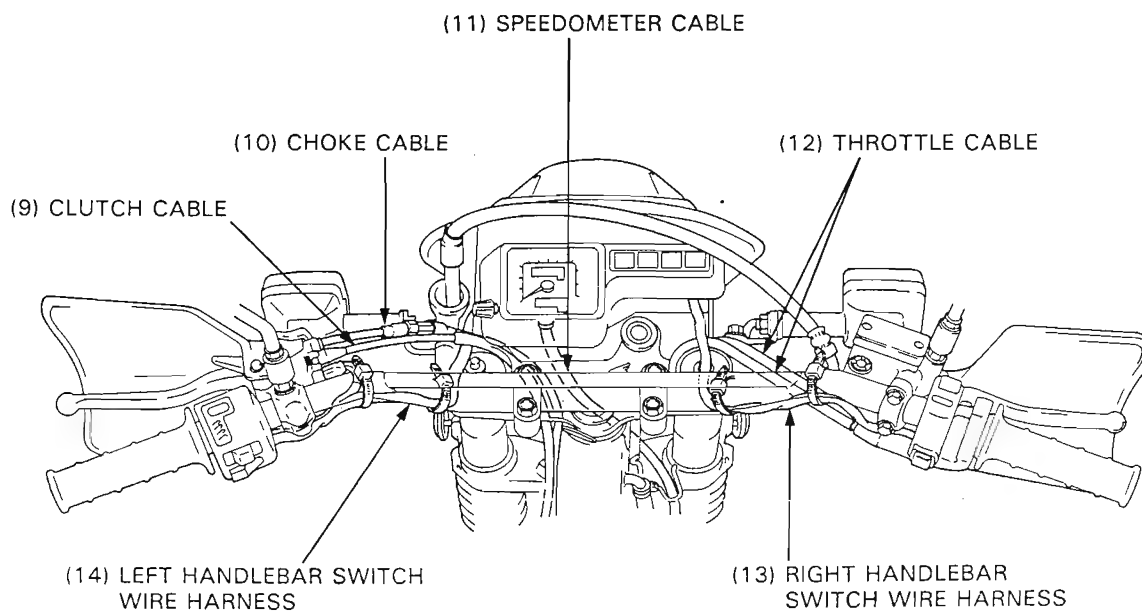
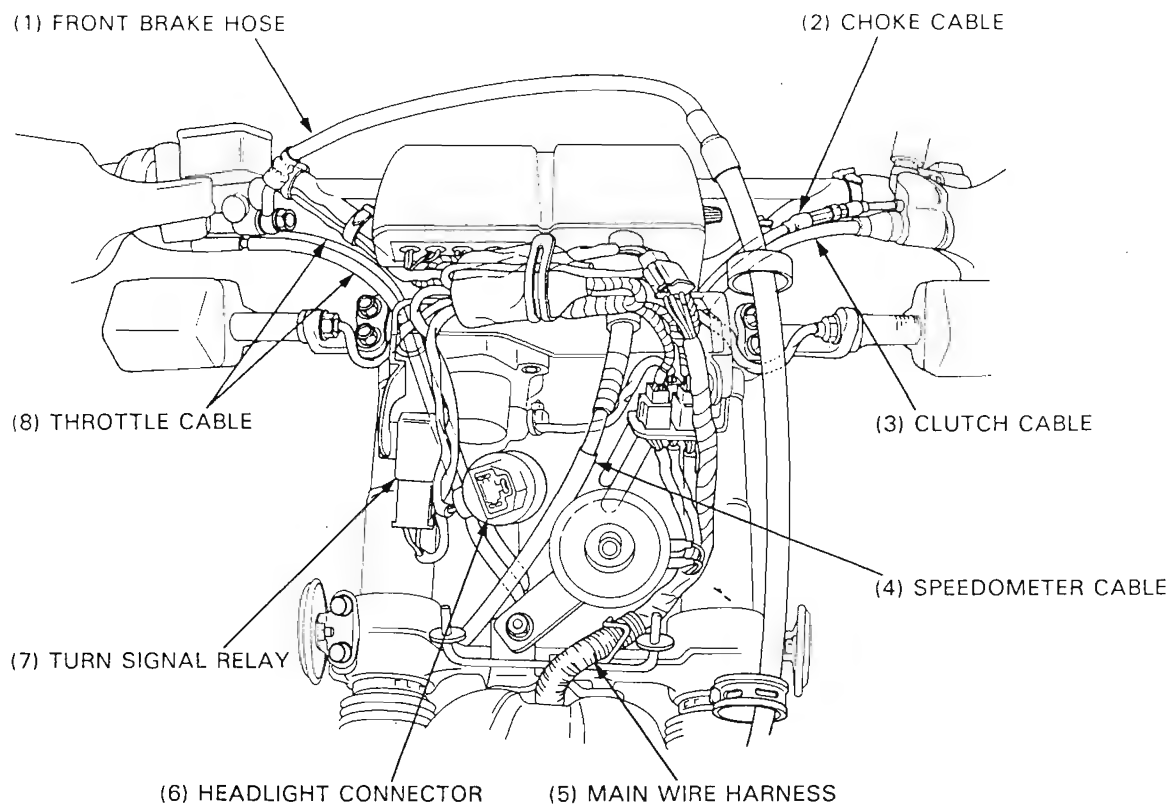
Lubrication & Seal points

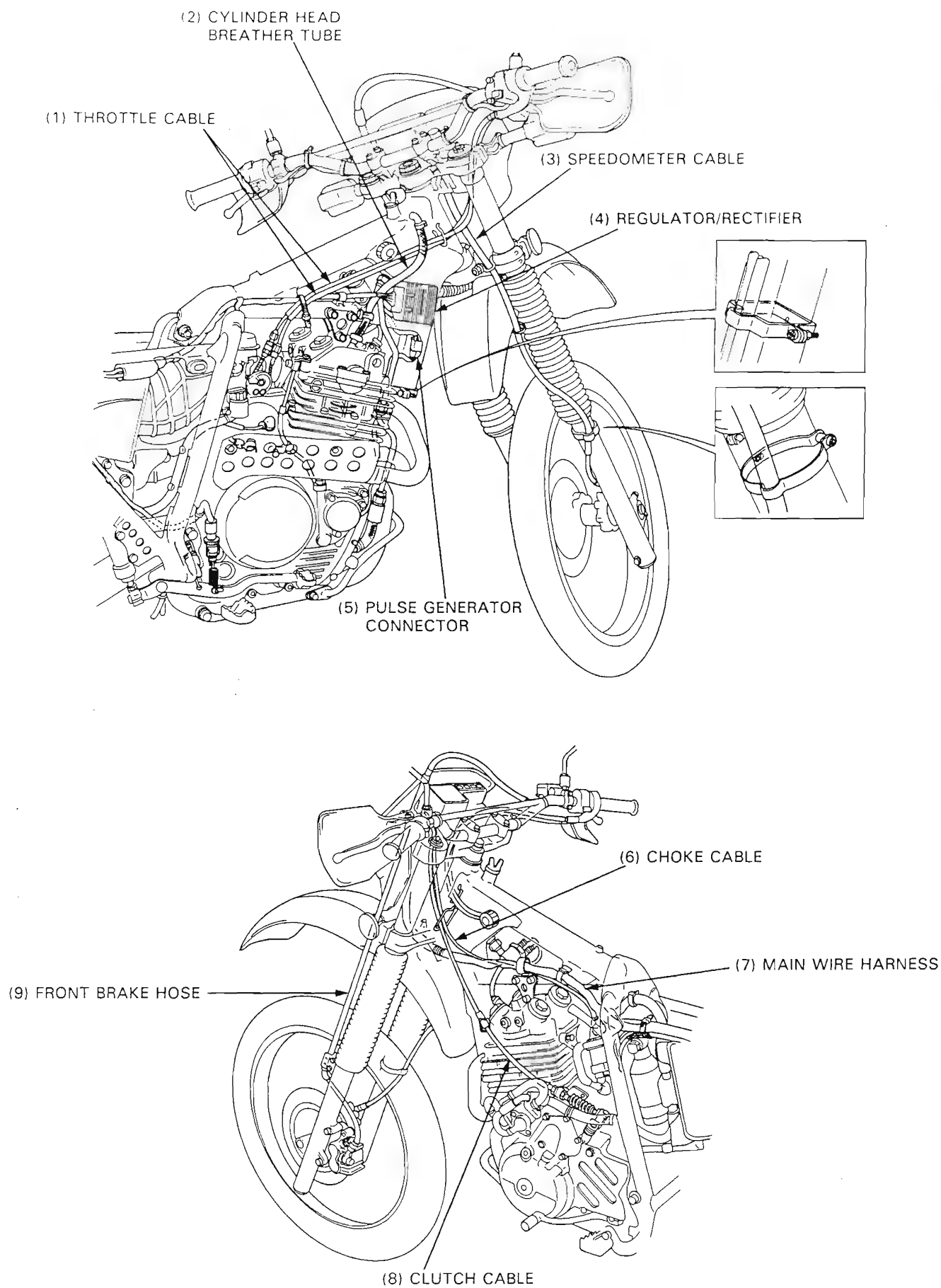
Engine		
Location	Remarks	Material
Valve stem (valve guide sliding surface) Rocker arm slipper surface Sub-rocker arm slipper surface Camshaft journals and cam lobes Clutch outer guide inner/outer surface Piston pin outer surface Transmission C3, M4 gear inner surface		Molybdenum disulfide oil solution. (a mixture of engine oil and molybdenum disulfide grease in a 1 : 1 ratio)
Cam chain Rocker arm shaft hole inner surface Sub-rocker arm shaft hole inner surface Piston pin hole inner surface Connecting rod small end Piston round surface Piston ring Shift fork shaft sliding surface Shift fork claw Shifter gear for groove Shift drum groove Connecting rod big end side surface Cylinder head bolt/washer Cylinder bolt/washer Clutch disc Clutch lifter arm shaft surface Threads: Flywheel bolt Primary drive gear nut Clutch lock nut Each bearing Oil seal lips O-rings		Recommended engine oil
Rocker arm shaft threads Sub-rocker arm shaft threads Cam sprocket bolt Cam chain tensioner bolt Gearshift cam bolt Pulse generator bolt Starter one way clutch torx bolt Drive sprocket cover bolt		Locking agent

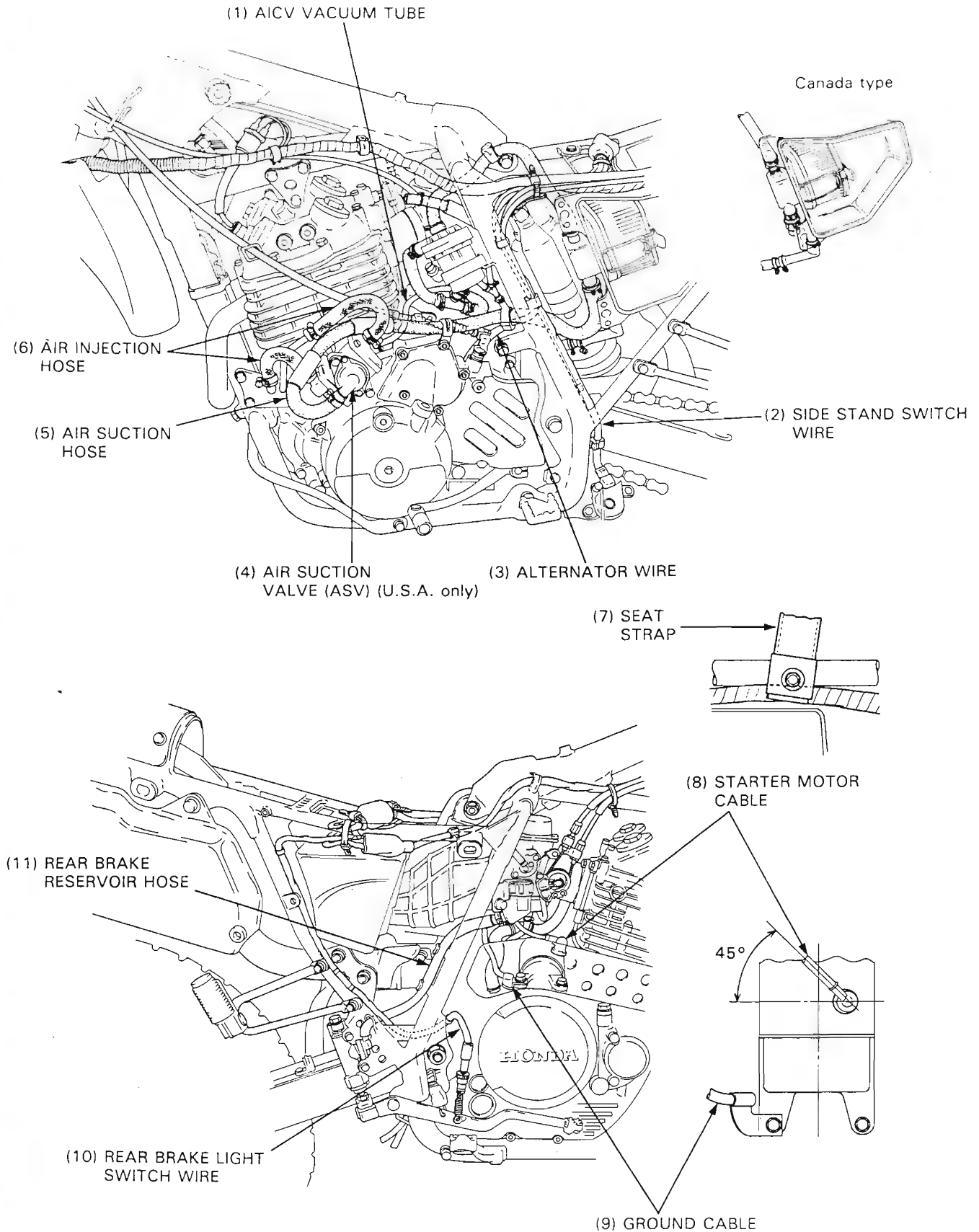
General Information

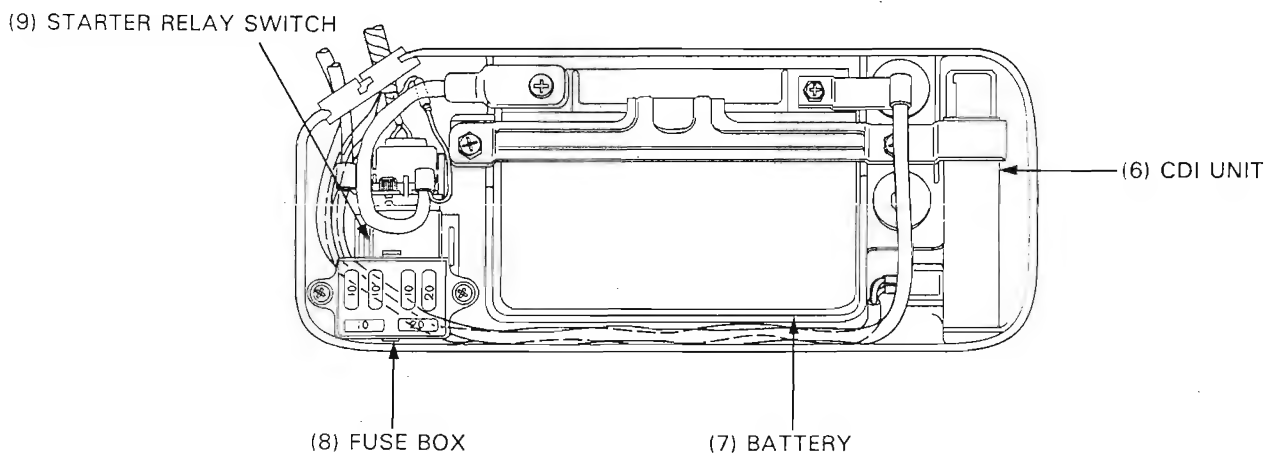
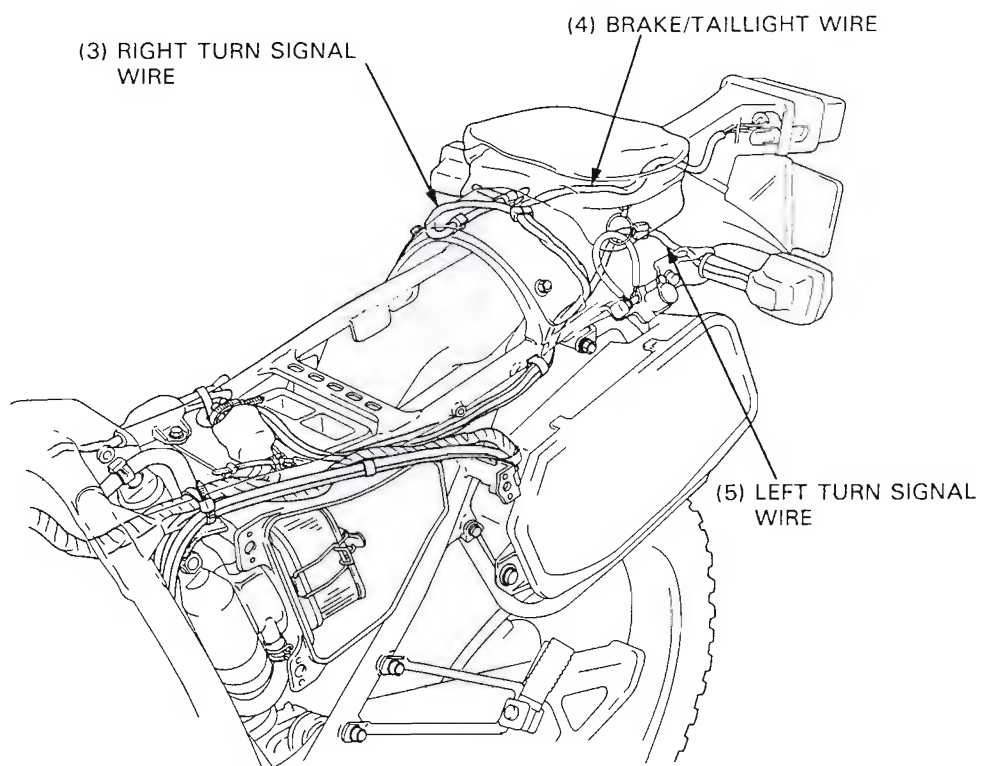
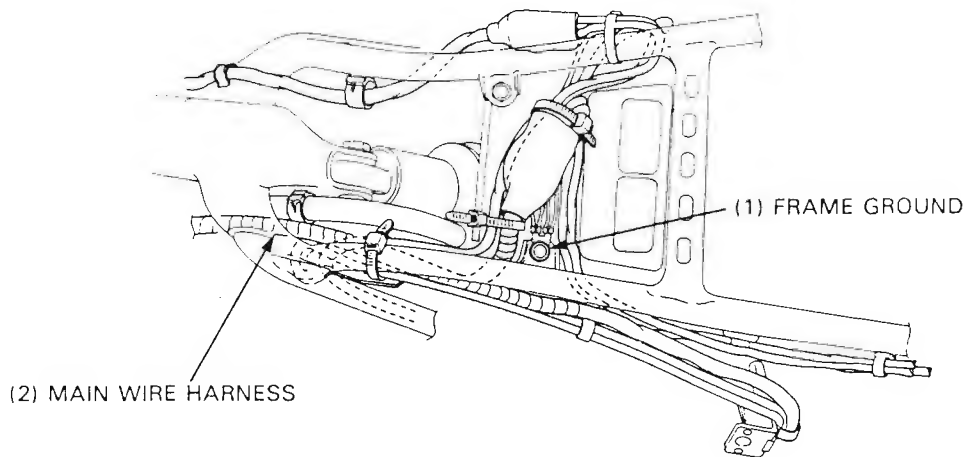
Frame	Location	Remarks	Material
	Drive chain		Transmission oil # 80—90
	Suspension linkage spherical bearing seal lips Shock absorber upper spherical bearing		Molybdenum disulfide past
	Shock absorber bearing seal lips Shock linkage dust seal cap lips Swing arm dust seal cap lips and collar		Molybdenum disulfide grease
	Side stand pivot sliding surface Suspension linkage bearing and collar Steering head bearing and cone race Swingarm pivot bearing Speedometer gear box Throttle grip Throttle cable slider sliding surface Clutch lever and brake lever pivot bolt Rear brake pedal pivot sliding surface Each dust seal lips and dust seal cap lips		Multi-purpose grease
	Caliper piston sliding surface Caliper seal Master cylinder piston cup Master cylinder inner surface Rear brake reservoir joint hose O-ring		DOT 4 brake fluid
	Handlebar grip rubbers		Honda Bond A or an equivalent
	Fork leg Fork dust seal lips Fork oil seal lips Fork cap bolt O-ring		Fork fluid
	Brake caliper pin bolt sliding surface Brake caliper pin bolt boot insides		Silicone grease
	Fork bottom bolt Side stand switch mounting bolt Ignition switch mounting bolt		Locking agent

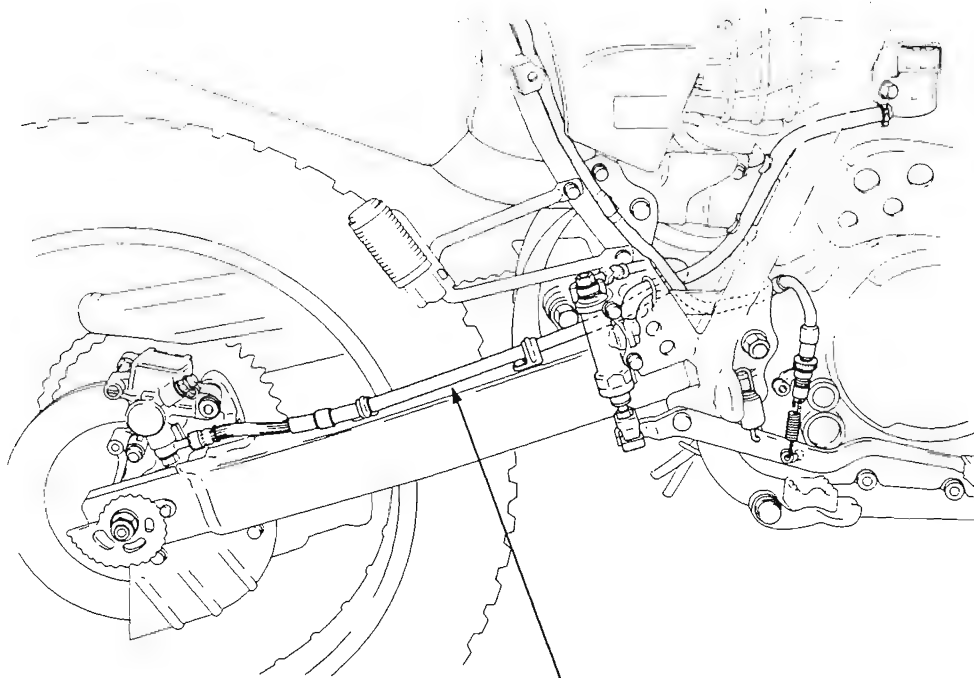
Cable & Harness Routing









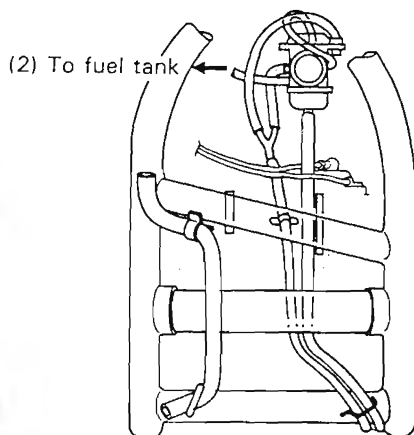


(1) REAR BRAKE HOSE

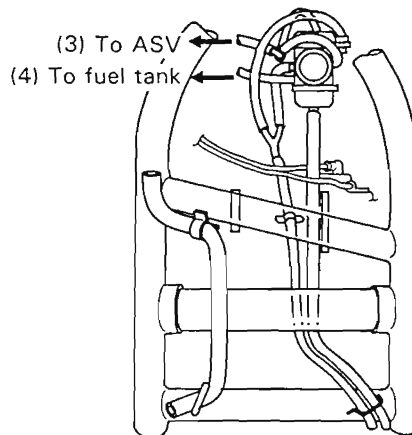
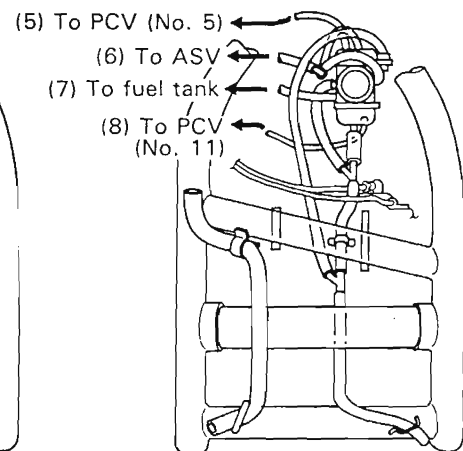
Canada type

49 State type

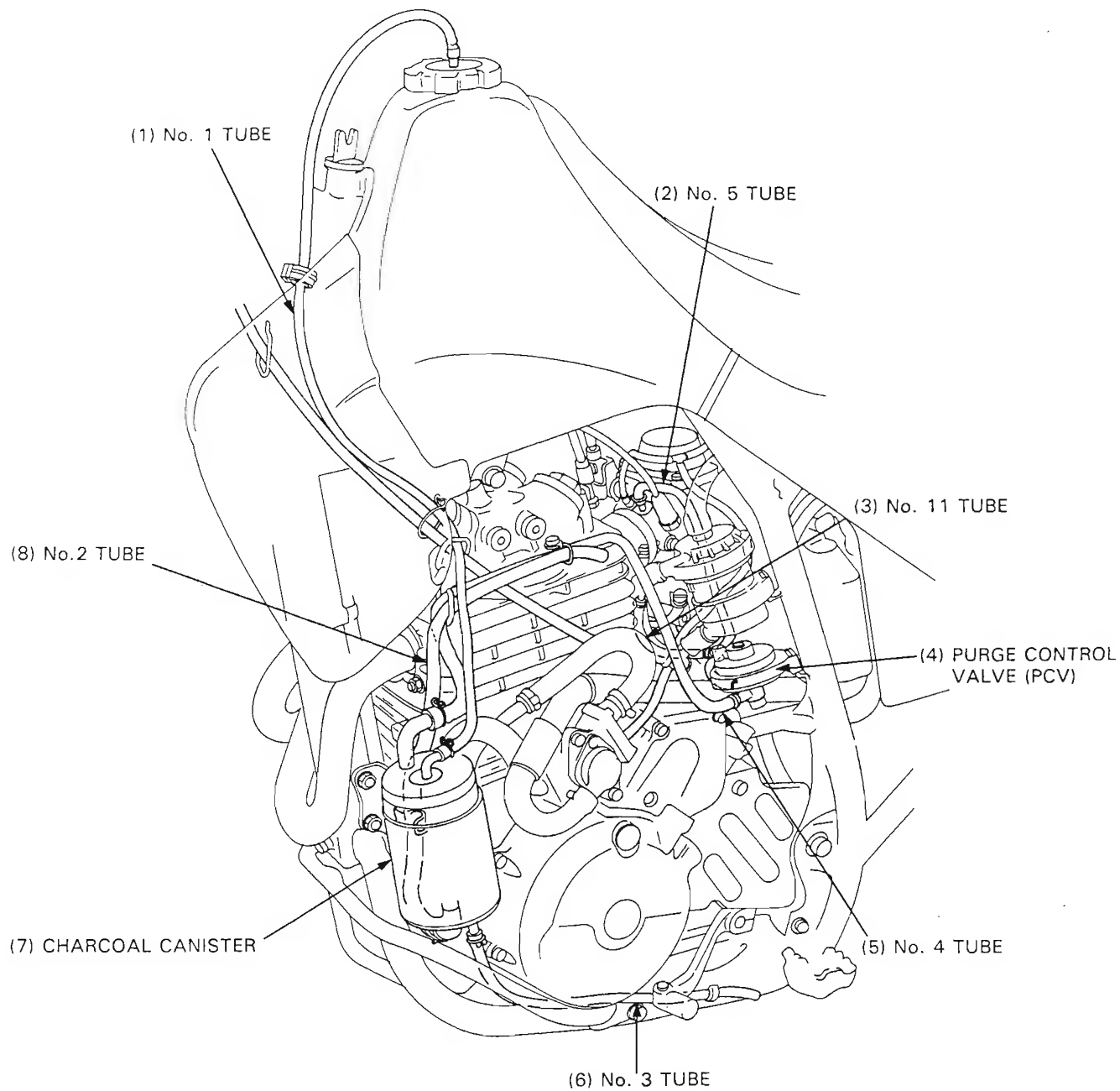
California type



(2) To fuel tank

(3) To ASV
(4) To fuel tank(5) To PCV (No. 5)
(6) To ASV
(7) To fuel tank
(8) To PCV (No. 11)

California Type Only



Emission Control Systems

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require manufacturers to certify that their motorcycles comply with applicable exhaust emissions standards during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 6,000 km (3,730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

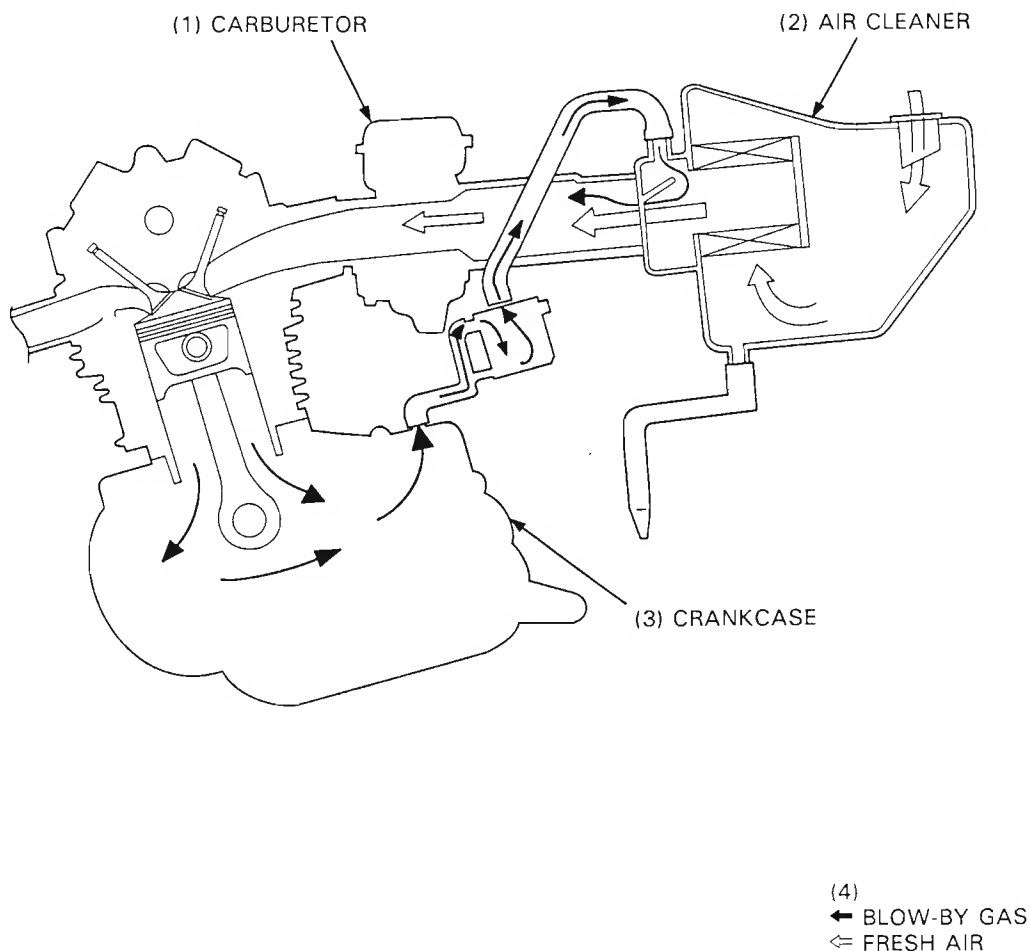
Source of Emissions

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

Crankcase Emission Control System

The crankcase emission control system routes crankcase emissions through the air cleaner and into the combustion chamber.

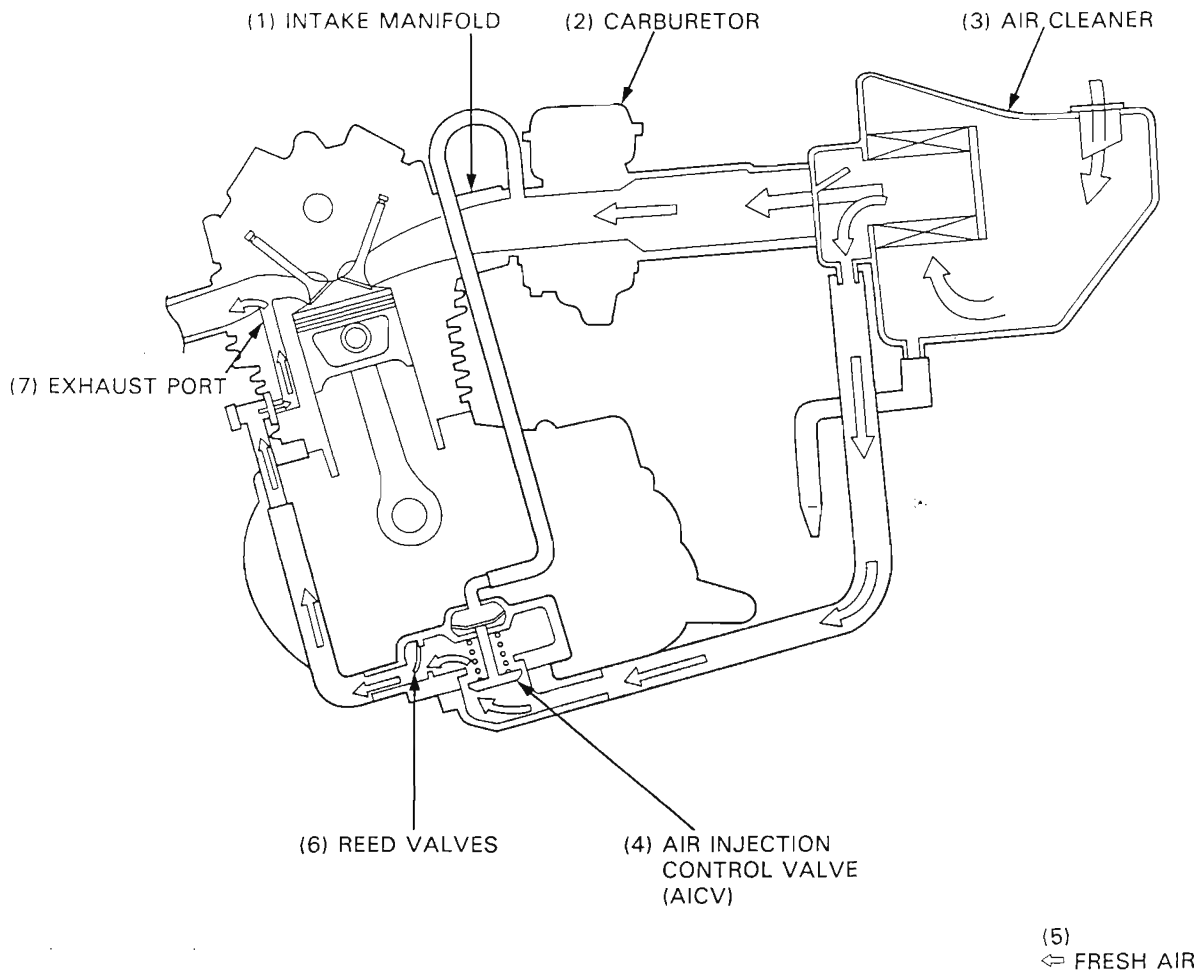


Exhaust Emission Control System (Secondary Air Supply System: U.S.A. Only)

The exhaust emission control system consists of a secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port whenever there is a negative pressure pulse in the exhaust system. This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water vapor.

A reed valve prevents reverse air flow through the system. The air injection control valve reacts to high intake manifold vacuum and will cut off the supply of fresh air during engine deceleration, thereby preventing afterburn in the exhaust system.

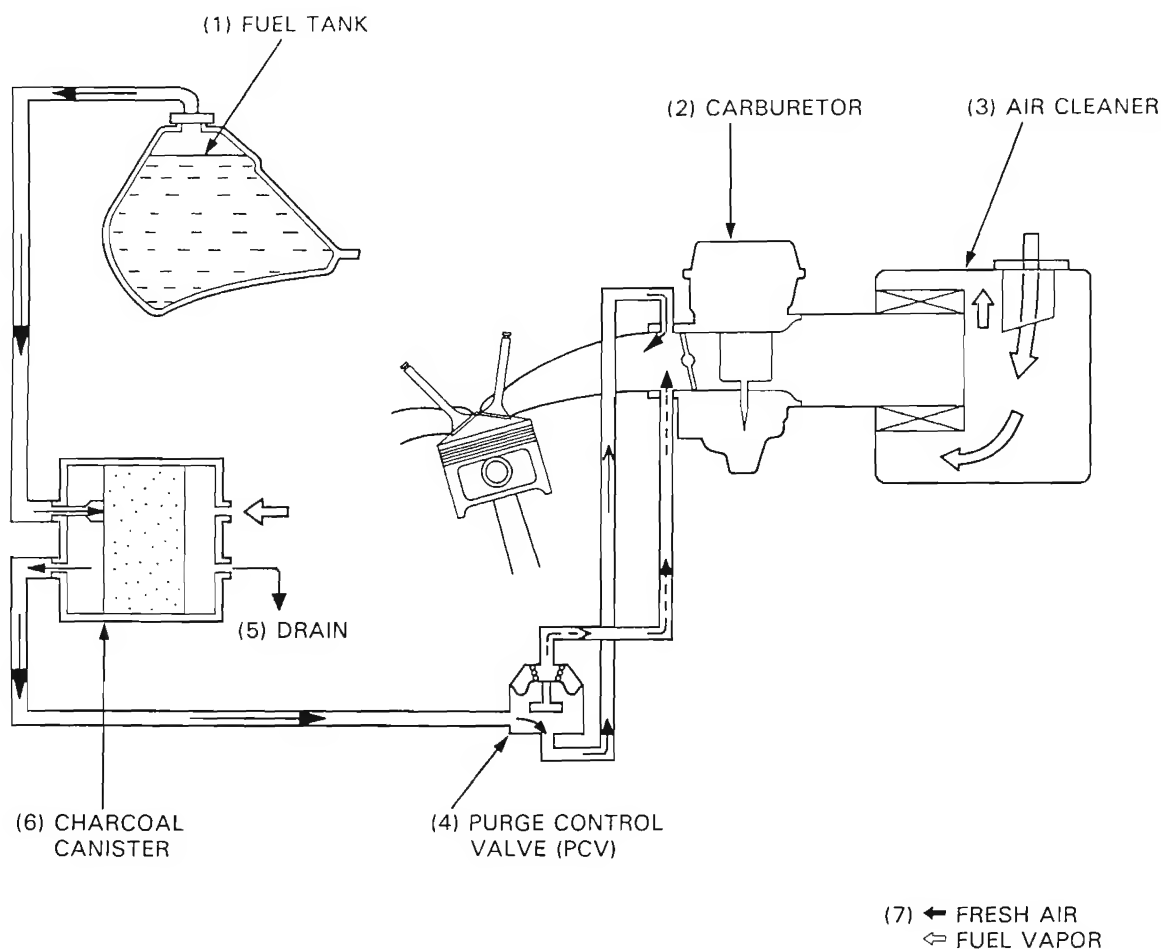
No adjustments to the secondary air supply system should be made, although periodic inspection of the components is recommended.



Evaporative Emission Control System (California type only)

This vehicle complies with the California Air Resources Board requirements for evaporative emission regulations.

Fuel vapor from the fuel tank and carburetors is routed into the charcoal canister where it is absorbed and stored while the engine is stopped. When the engine is running and the purge control diaphragm valve is open fuel vapor in the charcoal canister is drawn into the engine through the carburetor.



Noise Emission Control System

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purposes of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

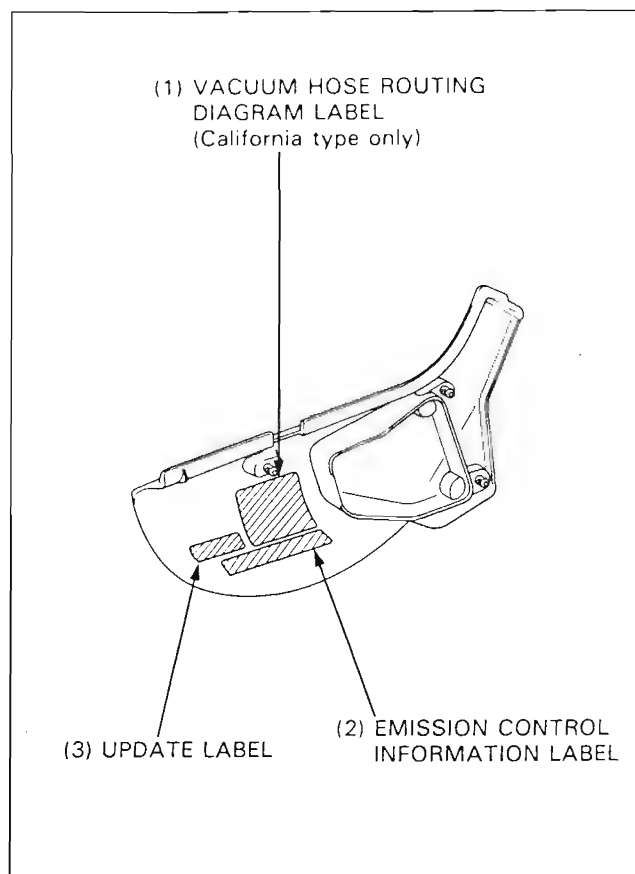
Emission Control Information Labels (U.S.A. Only)

An Emission Control Information Label is located on the inside of the left side cover. The side cover must be removed to read it. It gives basic tune-up specifications.

Vehicle Emission Control Information Update Label

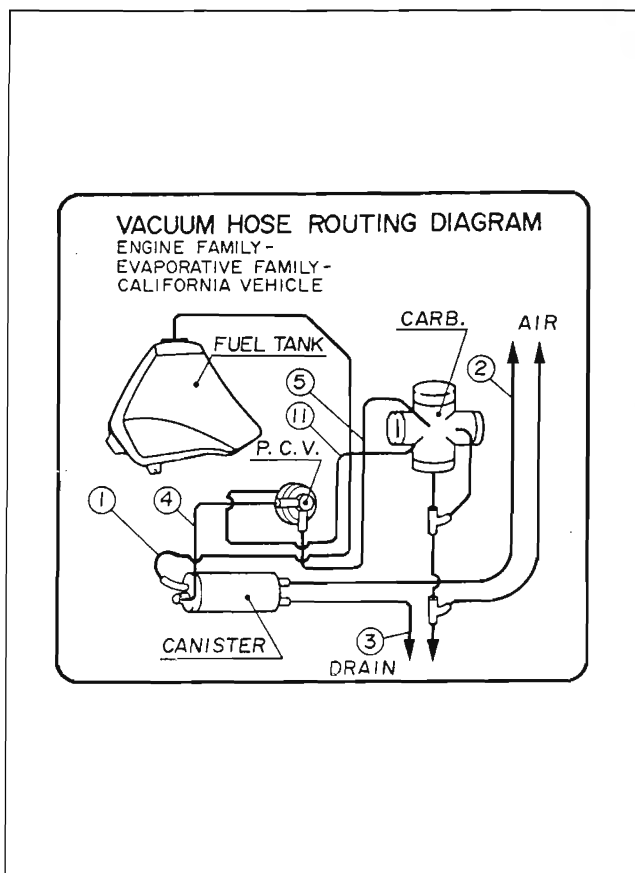
After making a high altitude carburetor adjustment, attach an update label on the inside of the left side cover.

Be sure to remove the label after adjusting for low altitude use.



Vacuum Hose Routing Diagram Label (California type only)

The Vacuum Hose Routing Diagram Label is on the inside of the left side cover.



2. Frame/Body Panels/Exhaust System

Service Information	2-1	Rear Fender Removal/Installation	2-4
Troubleshooting	2-1	Exhaust Pipe, Muffler Removal/Installation	2-6
Seat Removal/Installation	2-2	Engine Guard Removal/Installation	2-8
Fuel Tank Removal/Installation	2-3		

Service Information

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
 - Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.
-
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
 - This section covers removal and installation of the frame body panels, fuel tank and exhaust system.
 - Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
 - When installing the exhaust pipe, first install all the fasteners loosely. Next, tighten the exhaust clamps. Then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
 - Always inspect the exhaust system for leaks after installation.

Troubleshooting

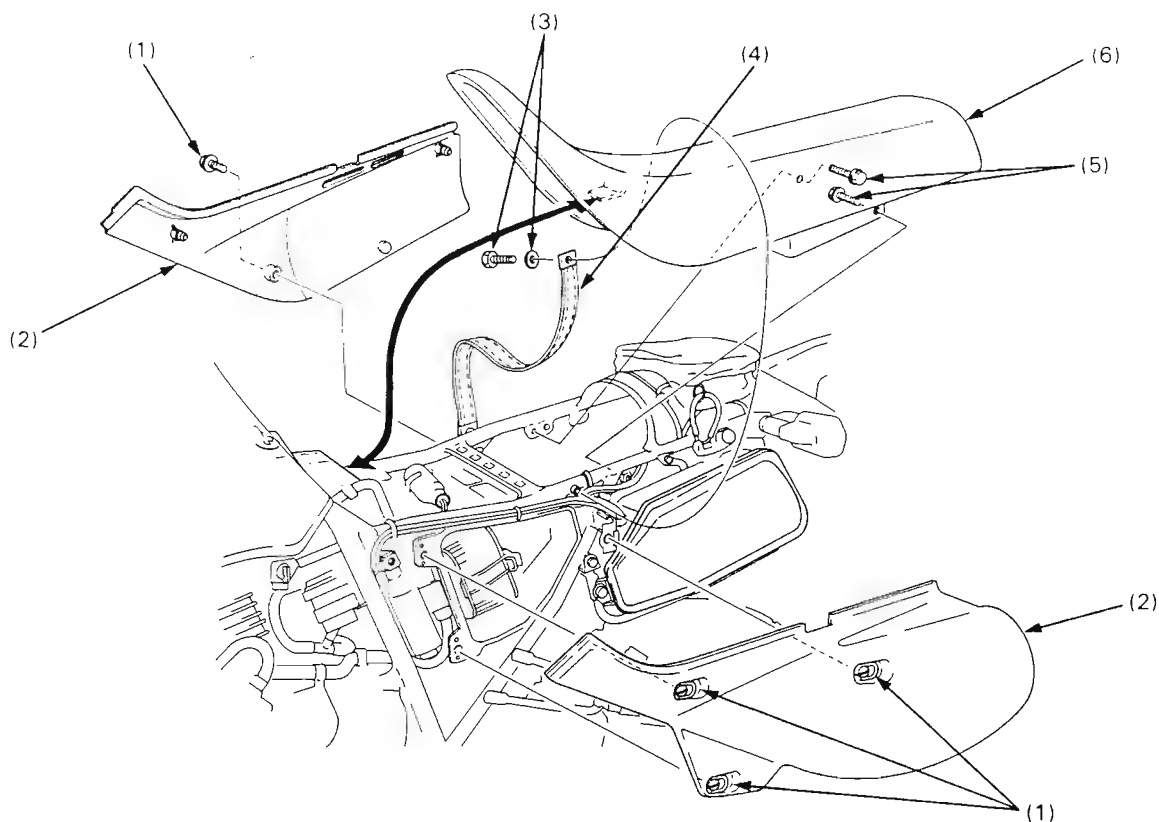
Excessive Exhaust Noise

- Broken exhaust system
- Exhaust gas leak

Poor Performance

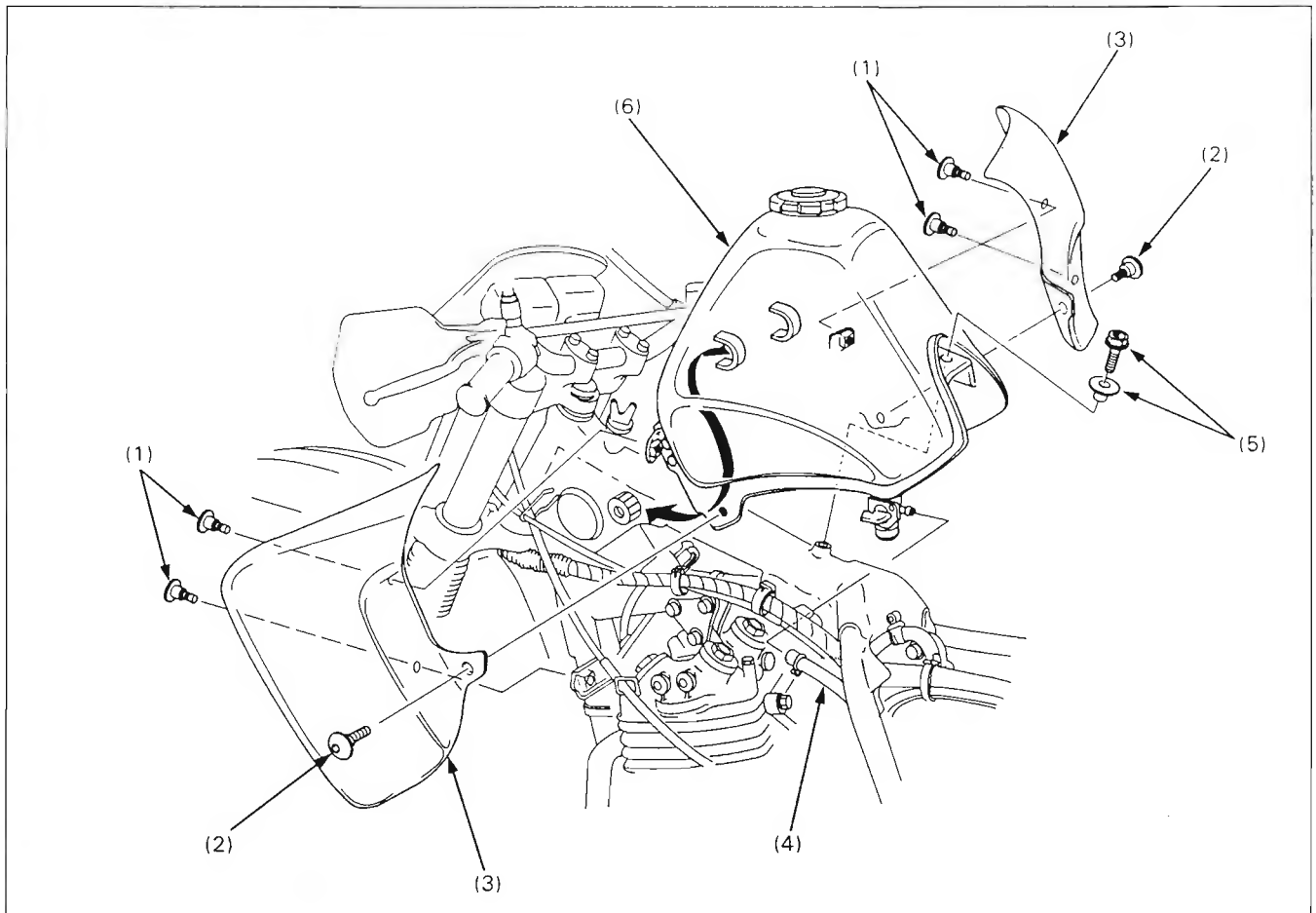
- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

Seat Removal/Installation



Procedure		Q'ty	Remarks
	Removal Order		
(1)	Side cover mounting bolt/quick screw	1/3	Installation is in the reverse order of removal. Release the quick screws by turning them counterclockwise.
(2)	Left/right side cover	1/1	
(3)	Seat strap bolt/washer	2/2	At installation, position the right side cover hooks in the frame grommets.
(4)	Seat strap	1	
(5)	Seat mounting bolt	2	At installation, slide the seat front prong onto the frame hole by pushing down and forward on the seat area.
(6)	Seat	1	

Fuel Tank Removal/Installation



WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
- Work in a well-ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

NOTE

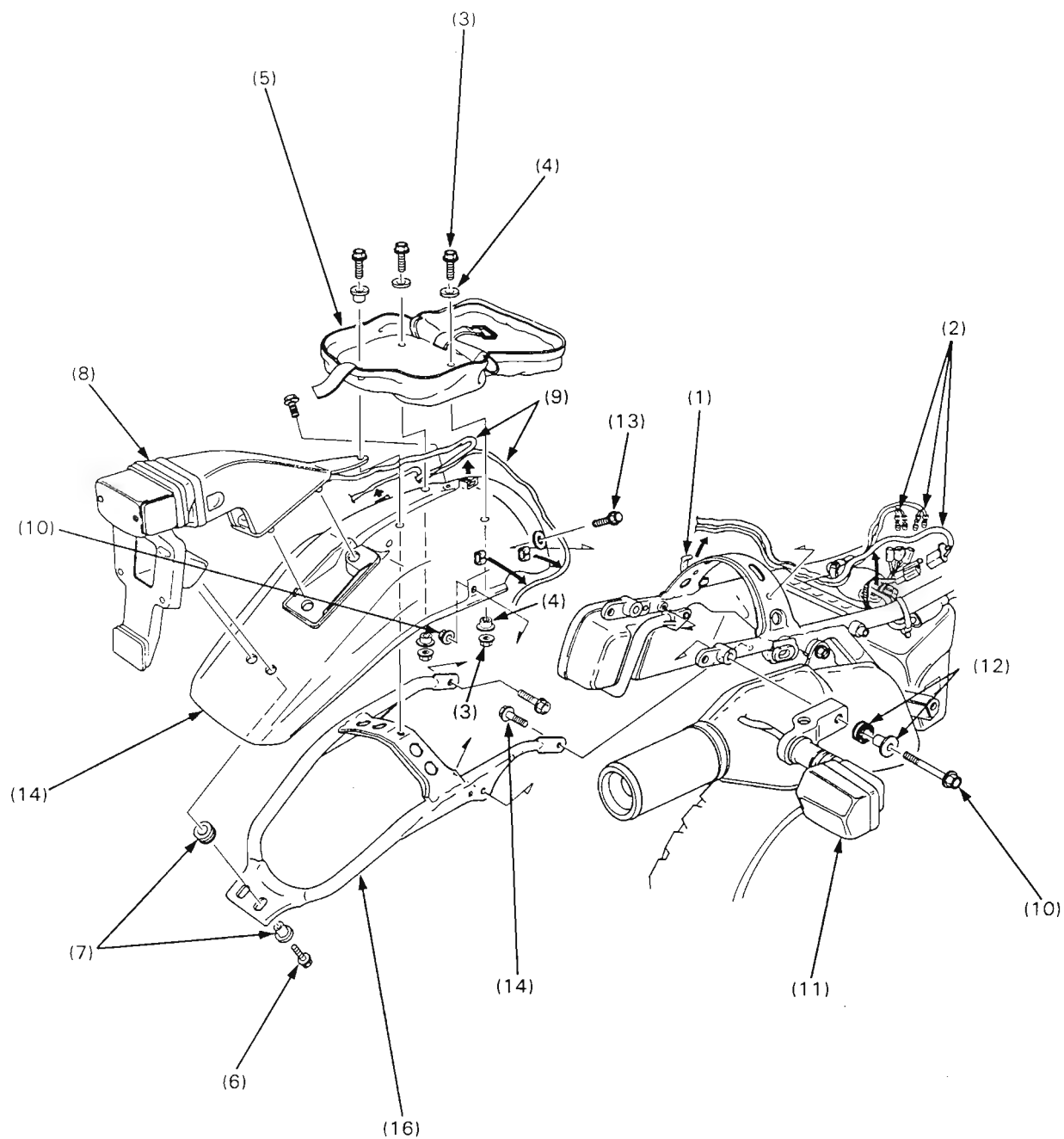
- Before removal, turn the fuel valve OFF.

Requisite Service

- Seat removal/installation (page 2-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Shroud mounting screw	4	
(2)	Shroud mounting bolt	2	
(3)	Right and left shroud	2	
(4)	Fuel tube	1	
(5)	Fuel tank mounting bolt/collar	1/1	
(6)	Fuel tank	1	

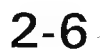
Rear Fender Removal/Installation



Requisite Service

- Seat removal/installation (page 2-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Harness clip	1	Release the clip from the tail/brake and turn signal light wires.
(2)	Tail/brake light connector	5	
(3)	Tool bag mounting bolt/nut	3/2	
(4)	Washer/collar	2/3	
(5)	Tool bag	1	
(6)	Tail/brake light mounting bolt	2	
(7)	Grommet/collar	2/2	
(8)	Tail/brake light assembly	1	Pull out the tail/brake light rubber from the fender.
(9)	Tail/brake and turn signal light wire	3	Remove from four wire clamps on the fender.
(10)	Turn signal light mounting bolt/nut	2/2	
(11)	Turn signal light assembly	2	
(12)	Grommet/collar	2/2	
(13)	Rear fender mounting bolt	2	
(14)	Rear fender	1	
(15)	Rear fender frame mounting bolt	2	
(16)	Rear fender frame	1	



▲ WARNING

- Do not service the exhaust system while it is hot.

Requisite Service

- Right side cover removal/installation (page 2-2)

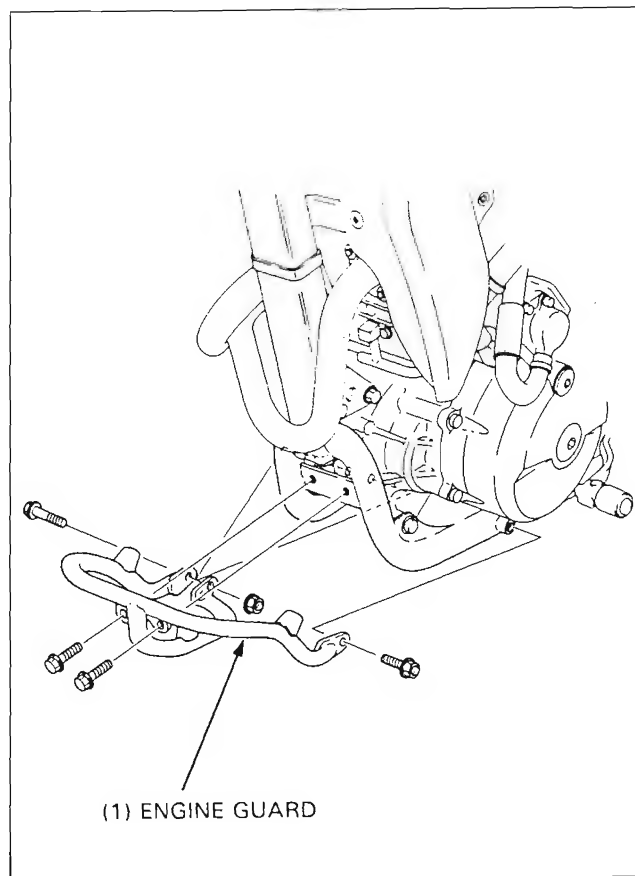
Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Mud guard mounting bolt	2	At installation, install all fasteners loosely and tighten the exhaust pipe joint nuts first.
(2)	Mud guard	1	
(3)	Exhaust pipe joint nut	4	
(4)	Exhaust pipe joint	4	
(5)	Muffler mounting bolt/washer (rear)	1/1	
(6)	Muffler mounting bolt (front)	1	Slide the heat guard plate upward and loosen the bolts fully.
(7)	Muffler band bolt	2	
(8)	Muffler assembly	1	At installation, install new gaskets onto the cylinder head first, and install the exhaust pipes.
(9)	Heat guard plate	1	
(10)	Exhaust pipe assembly	1	
(11)	Exhaust pipe seat gasket	2	

Engine Guard Removal/Installation

Remove the front mounting bolts.

Remove the side mounting bolts, nut (right side only) and engine guard.

Installation is in the reverse order of removal.



3.Maintenance

Service Information	3-1	Valve Clearance	3-5
Service Access Guide	3-2	Engine Oil	3-6
Maintenance Schedule	3-4	Carburetor Idle Speed	3-7
Carburetor Choke Cable Adjustment	3-5	Spark Arrester/Muffler	3-8

3

Service Information

⚠ WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.
- Refer to Common Service Manual for service procedures on items not included in this manual.
- Refer to Specifications (Section 1) for maintenance service data.

Service Access Guide

- The following shows the locations of the parts that must be removed for the maintenance items listed below. Refer to the Common Service Manual for items not included in this manual.
- Refer to section 2 (Frame/body panels/exhaust system), for the parts that must be removed for service.
For example: AIR CLEANER (Contamination, clogging, replacement): Parts
 - Side cover — The parts that must be removed for service.

(16) CARBURETOR CHOKE
(Operation: page 3-5)

(1) TIMING HOLE CAP (Ignition timing)

(15) CLUTCH LEVER (Free play)

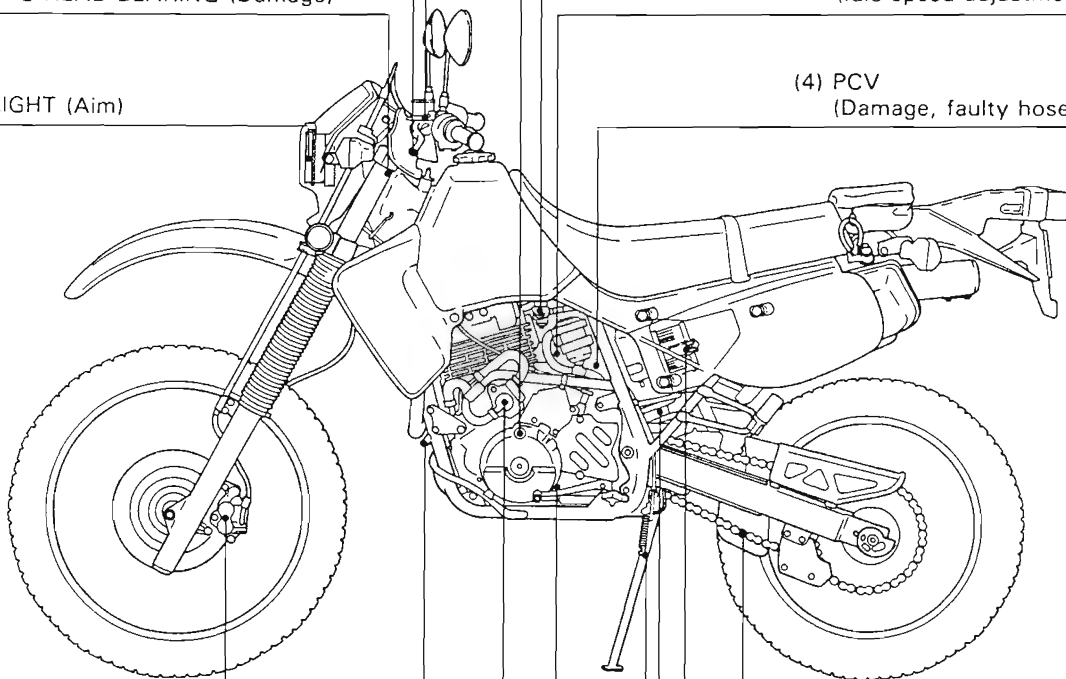
(2) FUEL LINE (Damage, leakage)

(14) STEERING HEAD BEARING (Damage)

(3) THROTTLE STOP SCREW
(Idle speed adjustment: page 3-7)

(13) HEADLIGHT (Aim)

(4) PCV
(Damage, faulty hose: page 5-12)



(12) BRAKE CALIPER
(Pad wear)

(5) DRIVE CHAIN
(Free play, lubrication, replacement)

(11) ENGINE OIL DOWN TUBE DRAIN PLUG
(Oil replacement: page 3-6)

(6) AIR CLEANER (Contamination, clogging, replacement) • Side cover

(10) ASV (Damage, faulty hose: page 5-12)

(7) SUSPENSION
(Loose, wear, damage)

(9) ENGINE OIL CHECK BOLT (Level check)

(8) SIDE STAND (Operation)

(17) VALVE CLEARANCE (page 3-5)

(16) BRAKE RESERVOIR
(Level check, fluid replacement)

(15) WHEEL
(Damage, runout, corrosion)

(14) TIRE
(Wear, damage, pressure)

(13) BRAKE CALIPER
(Pad wear)

(12) BRAKE LIGHT SWITCH
(Operation)

(11) ENGINE OIL CRANKCASE DRAIN PLUG
(Oil replacement: page 3-6)

(10) BRAKE PEDAL
(Air in system)

(1) THROTTLE GRIP (Operation, free play)

(2) OIL FILLER CAP/LEVEL GAUGE
(Level check, replacement)

(3) BRAKE LEVER (Air in system)

(4) BRAKE MASTER CYLINDER
(Level check, fluid replacement)

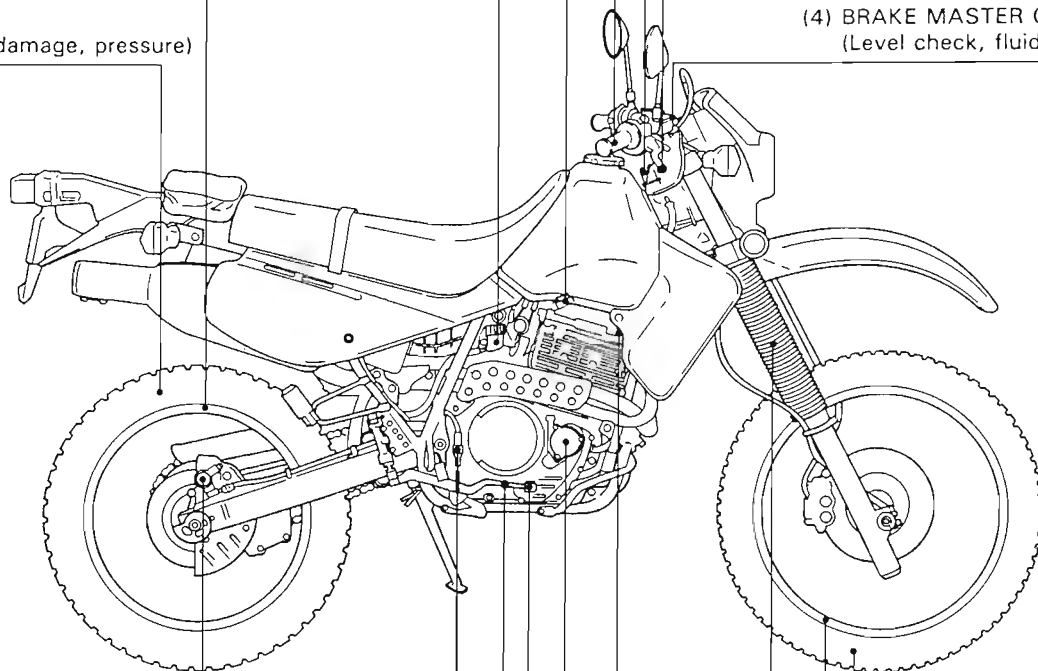
(5) TIRE
(Wear, damage, pressure)

(6) WHEEL
(Damage, runout, corrosion)

(7) SUSPENSION
(Loose, wear, damage)

(8) SPARK PLUG
(Wear, damage, color)

(9) OIL FILTER (Replacement)



Maintenance Schedule

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

I: Inspect and clean, adjust, lubricate or replace if necessary.

C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult their authorized Honda dealer.

Item			Frequency ↓ Note	Odometer Reading (Note 1)								Refer to page
				x 1,000 mi	0.6	4	8	12	16	20	24	
				x 100 km	10	64	128	192	256	320	384	
Emission Related Items	*	Fuel Line					I		I		I	Note 6
	*	Fuel Strainer Screen				C	C	C	C	C	C	Note 6
	*	Throttle Operation					I		I		I	Note 6
	*	Carburetor Choke					I		I		I	3-5
		Air Cleaner	Note 2					R			R	Note 6
		Spark Plug				I	R	I	R	I	R	Note 6
	*	Valve Clearance			I	I	I	I	I	I	I	3-5
		Engine Oil			R	R Every 2,000 mi (3,000 km)						3-6
		Engine Oil Filter			R		R		R		R	Note 6
	*	Carburetor Idle Speed			I	I	I	I	I	I	I	3-7
	*	Secondary Air Supply System					I		I		I	5-12, Note 6
	*	Evaporative Emission Control System	Note 3					I			I	Note 6
Non-emission Related Items		Drive Chain	Note 4		I, L EVERY 600 mi (1,000 km)							Note 6
		Drive Chain Slider				I	I	I	I	I	I	Note 6
		Brake Fluid	Note 5			I	I	R	I	I	R	Note 6
		Brake Pads Wear				I	I	I	I	I	I	Note 6
		Brake System			I		I		I		I	Note 6
	*	Brake Light Switch					I		I		I	Note 6
	*	Headlight Aim					I		I		I	Note 6
		Clutch System			I	I	I	I	I	I	I	Note 6
		Side Stand					I		I		I	Note 6
	*	Suspension					I		I		I	Note 6
	*	Spark Arrester/Muffler				C	C	C	C	C	C	3-8
	*	Nuts, Bolts, Fasteners	Note 4		I		I		I		I	Note 6
	**	Wheels/Tires	Note 4		I	I	I	I	I	I	I	Note 6
	**	Steering Head Bearings			I		I		I		I	Note 6

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

Notes: 1. At higher odometer readings, repeat at the frequency interval established here.

2. Service more frequently when riding in unusually wet or dusty areas.

3. California type only.

4. Service more frequently when riding OFF-ROAD.

5. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.

6. Refer to the Common Service Manual.

Carburetor Choke Cable Adjustment

By-starter Choke

By-starter choke system operation can be checked by the way engine starts and runs.

NOTE

- Difficulty in starting before the engine is warmed up (easy once it is warmed up): starter valve is not completely opened (OFF).
- Idle speed is erratic even after warm-up (imperfect combustion): starter valve is not completely closed (ON).

When the above symptoms occur, inspect the by-starter valve using the following procedure.

Remove the fuel tank (page 2-3).

Loosen the by-starter valve and remove it from the carburetor.

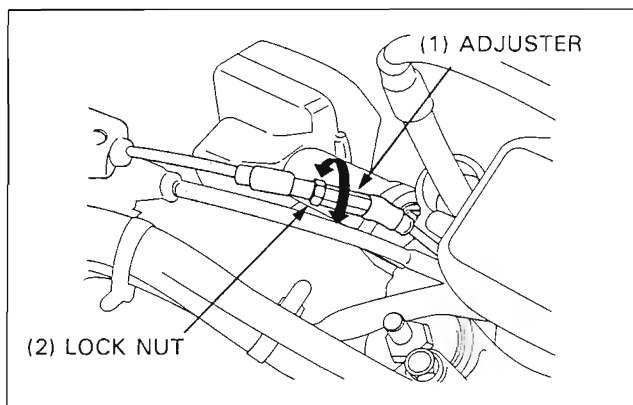
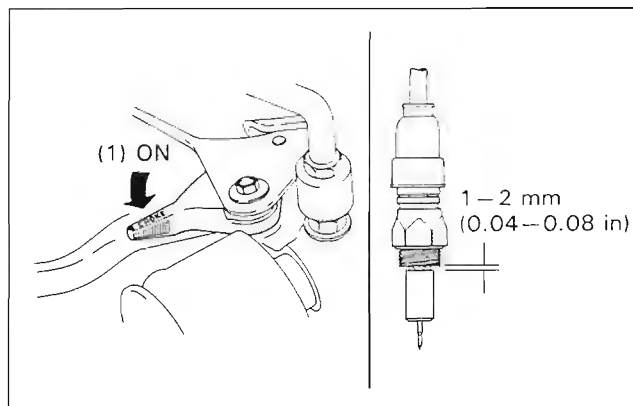
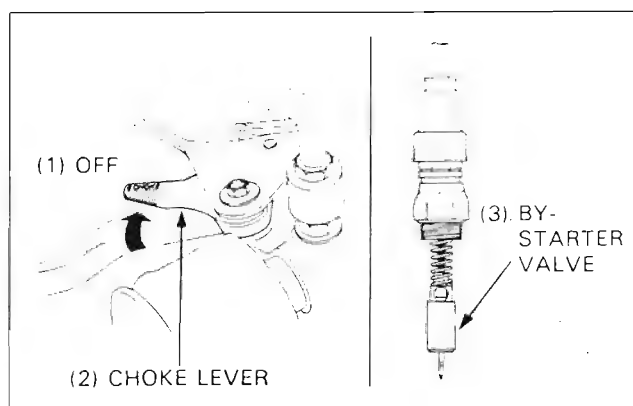
Turn the choke lever to fully open position (ON) and measure the clearance between the by-starter valve end and the cable threaded end as shown.

Clearance: 1–2 mm (0.04–0.08 in)

Adjust by loosening the lock nut and turning the adjuster to specified clearance.

Tighten the lock nut after the adjustment has been made.

Recheck the clearance and choke lever operation and install the by-starter valve to the carburetor.



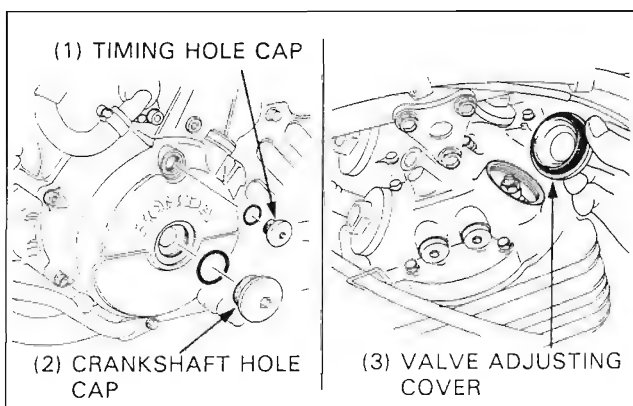
Valve Clearance

NOTE

- Inspect and adjust valve clearance while the engine is cold (below 35°C/95°F).

Remove the fuel tank (page 2-3).

Remove the timing hole and crankshaft hole caps.
Remove the valve adjusting covers.



Maintenance

Rotate the crankshaft counterclockwise and align the "T" mark with the index notch of the left crankcase cover.

Make sure the piston is at TDC (Top Dead Center) on the compression stroke. Check the clearance of the exhaust and intake valves by inserting a feeler gauge between the adjusting screw and sub-rocker arm.

NOTE

- When checking the clearance, slide the feeler gauge from the inside out, in the direction of the arrow.

Valve clearance: IN: 0.10 mm (0.004 in)
EX: 0.12 mm (0.005 in)

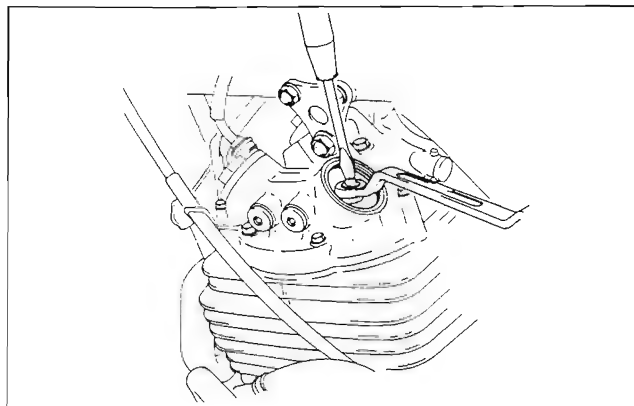
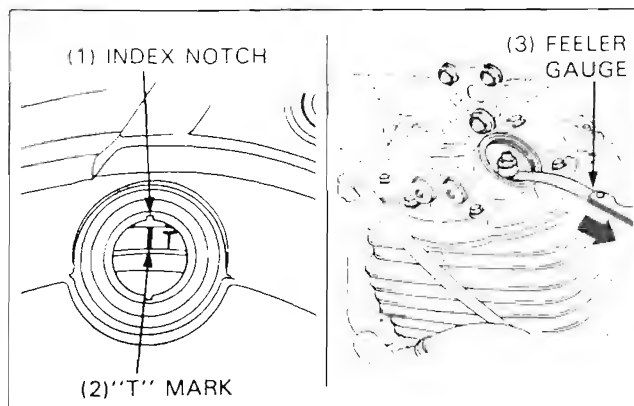
Adjust by loosening the lock nut and turning the adjusting screw until there is slight drag on the feeler gauge.

Hold the adjusting screw and tighten the lock nut.

Torque: 25 N·m (2.5 kg·m, 18 ft·lb)

After tightening the valve adjusting lock nut, recheck the valve clearance.

Install the removed parts in the reverse order of removal.



Engine Oil

Replacement

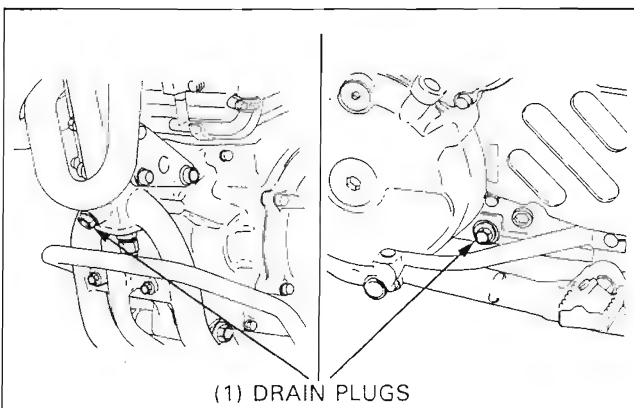
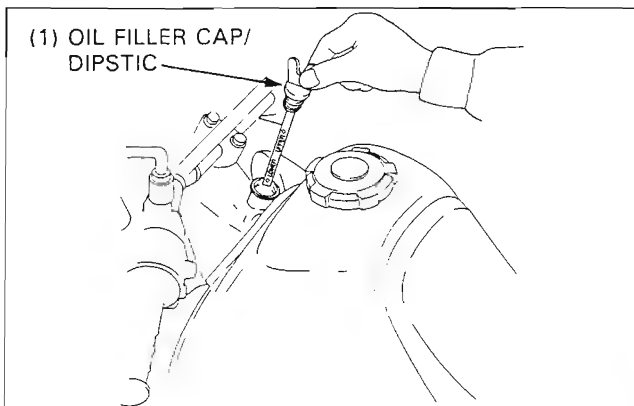
NOTE

- Change the engine oil with the engine warm and the motorcycle on its side stand to assure complete and rapid draining.
- Clean the oil strainer screen/oil strainer nut before filling the engine with oil (page 4-6).

Remove the oil filler cap/dipstick and drain plugs on the frame down tube and the left crankcase.

CAUTION

- Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.



After the oil has drained, check that the drain plug sealing washer are in good condition, then install the plugs.

Torque:

Crankcase drain plug: 25 N·m (2.5 kg-m, 18 ft-lb)

Down tube drain plug: 40 N·m (4.0 kg-m, 29 ft-lb)

NOTE

- If maintenance is scheduled for the oil filter (Section 2 of the Common Service Manual), do these before filling the frame oil tank.
- The engine takes about 1.9 liters (2.0 U.S. qt, 1.7 Imp qt) at oil change. But since only a portion of that oil is held in the frame's oil tank, you cannot add the full amount initially.

Pour 1 liter (1.05 U.S. qt, 0.88 Imp qt) of recommended oil into the oil tank.

Install the oil filler cap/dipstick.

Start the engine and let it idle for a few minutes.

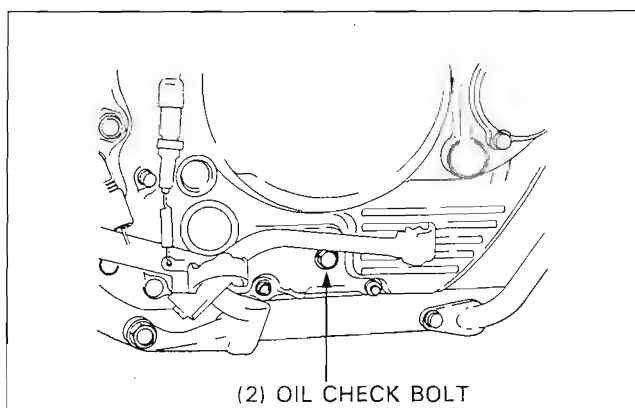
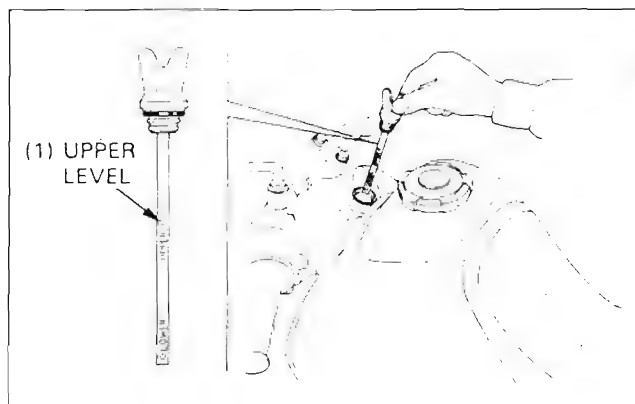
Stop the engine and add the recommended oil up to the upper level mark with the motorcycle upright.

Crankcase Oil Check Bolt

NOTE

- The crankcase oil level check bolt is useful when checking the lubrication system; the oil pump adjusts the oil level so that the crankcase is always kept at the proper level. If this check shows otherwise, some portion of the lubrication system is not working properly.

The crankcase oil level is correct if the oil is flush with the bottom of the check bolt hole.



Carburetor Idle Speed

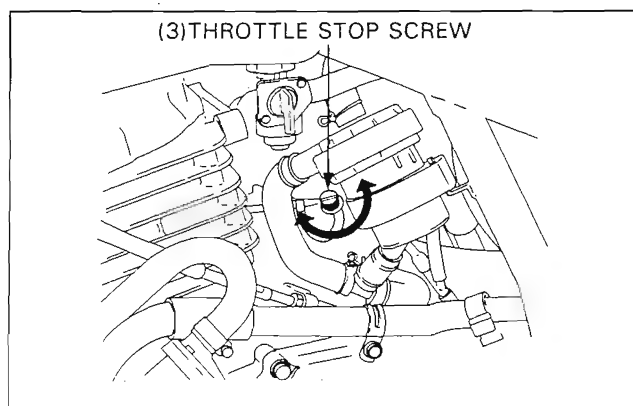
NOTE

- Inspect and adjust idle speed after all other engine adjustments are within specifications.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.

Warm up the engine, shift to NEUTRAL, and place the motorcycle on its side stand.

Turn the throttle stop screw as required to obtain the specified idle speed.

Idle Speed: 1,300 ± 100 rpm



Spark Arrester/Muffler

⚠ WARNING

- Wait until the pipe has cooled before removing or installing the muffler lids. Touching the hot exhaust may result in severe burns.
- Perform this operation in a well-ventilated area free from combustible materials.
Carbon particles may blow out of the clean out holes when performing this service. Wear safety glasses to prevent possible eye injuries.

Remove the front and rear muffler lids. Block the end of the muffler with a shop towel.

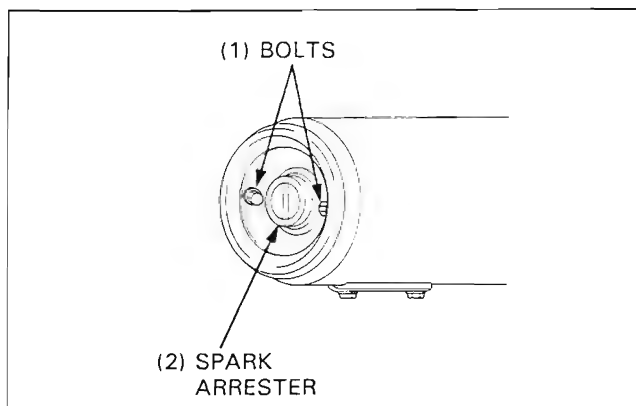
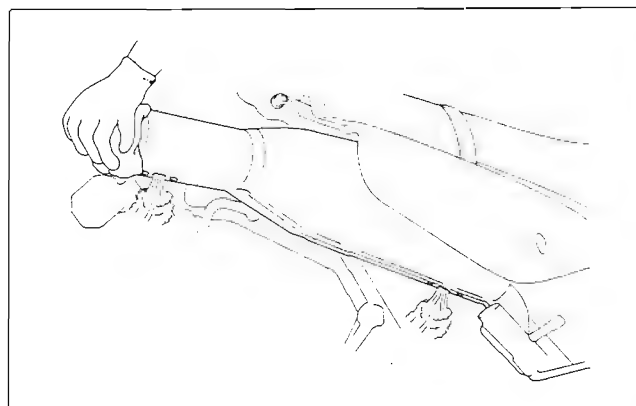
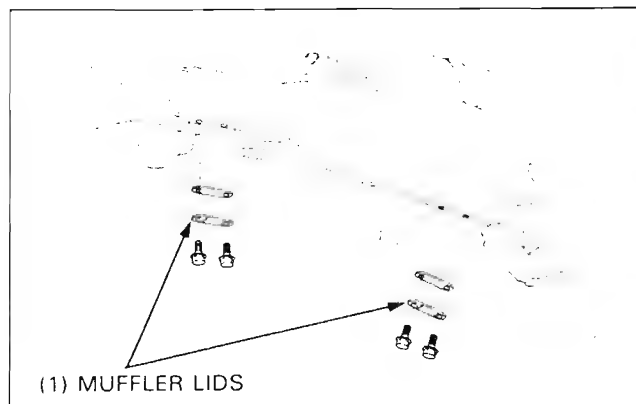
Start engine and rev it up to blow accumulated carbon deposits out of the muffler.

Be sure that the muffler lid bolts and gaskets are in good condition. Replace the bolts and gaskets if necessary.

Install the muffler lids and gaskets and tighten the bolts securely.

NOTE

- Do not remove the two bolts that hold the exhaust baffle in the end of the spark arrester/muffler.
- The two mounting bolts must be installed in the spark arrester body at all times for the spark arrester to be effective.



4. Lubrication System

Service Information	4-1	Oil Pump Removal/Installation	4-3
Troubleshooting	4-1	Oil Pump Disassembly/Assembly	4-4
Lubrication System Diagram	4-2	Oil Strainer Screen, Oil Strainer Nut	4-6

Service Information

⚠ WARNING

- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.
- Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. **KEEP OUT REACH OF CHILDREN.**

- The oil pump can be serviced with the engine in the frame.
- The service procedures in this section must be performed after the engine oil is drained.
- When removing and installing the oil pump use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

Troubleshooting

Oil Level Low

- Oil consumption
- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal
- Oil pump worn or damaged

Low or No Oil Pressure

- Clogged oil filter screen
- Oil orifice collar damaged
- Incorrect oil being used

No Oil Pressure

- Oil level too low
- Oil pump drive gear broken
- Oil pump damaged (pump shaft)
- Internal oil leaks

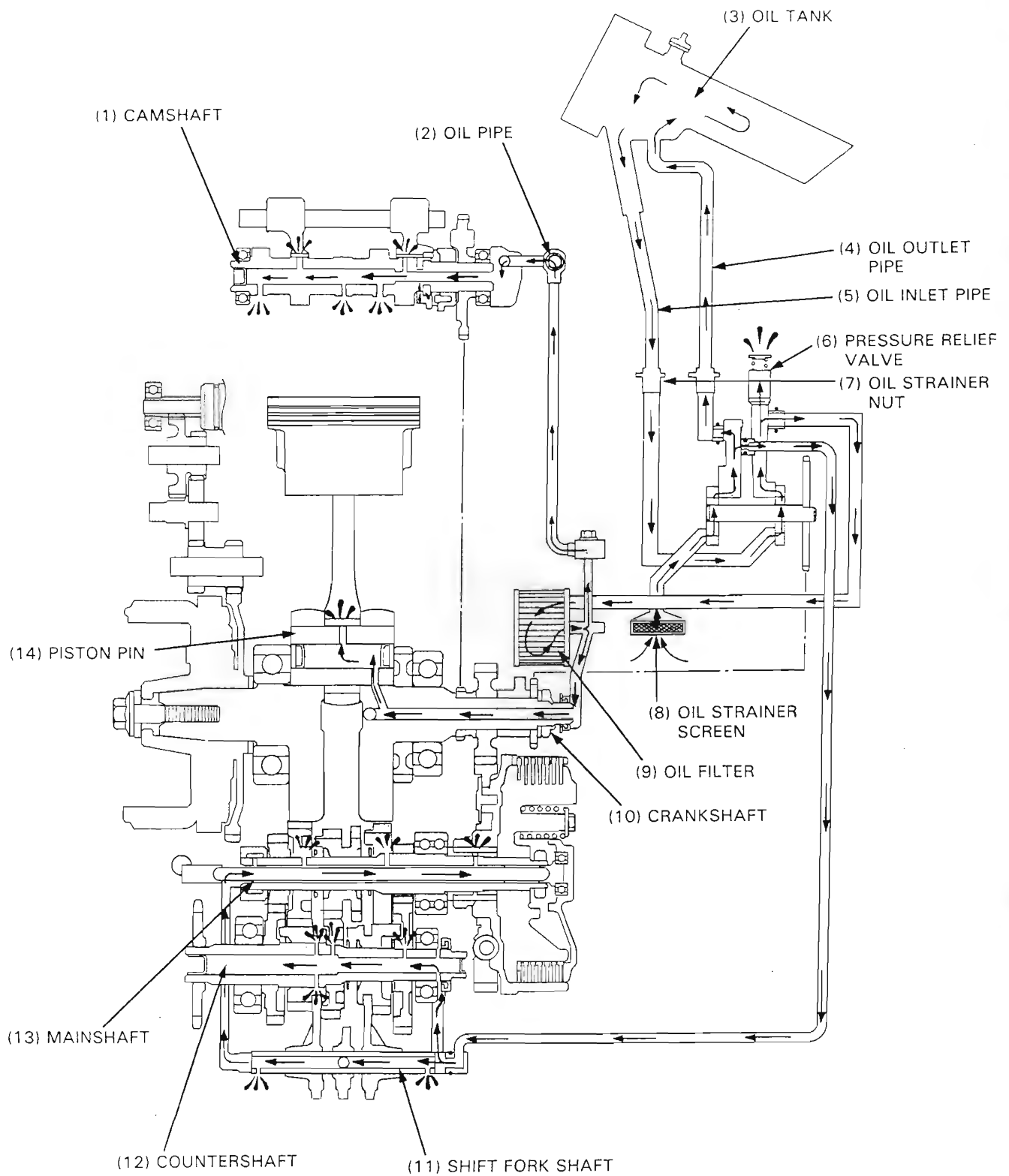
Low Oil Pressure

- Clogged oil filter
- Oil pump worn or damaged
- Internal oil leak
- Oil orifice collar damaged
- Incorrect oil being used
- Low oil level
- Pressure relief valve stuck open.

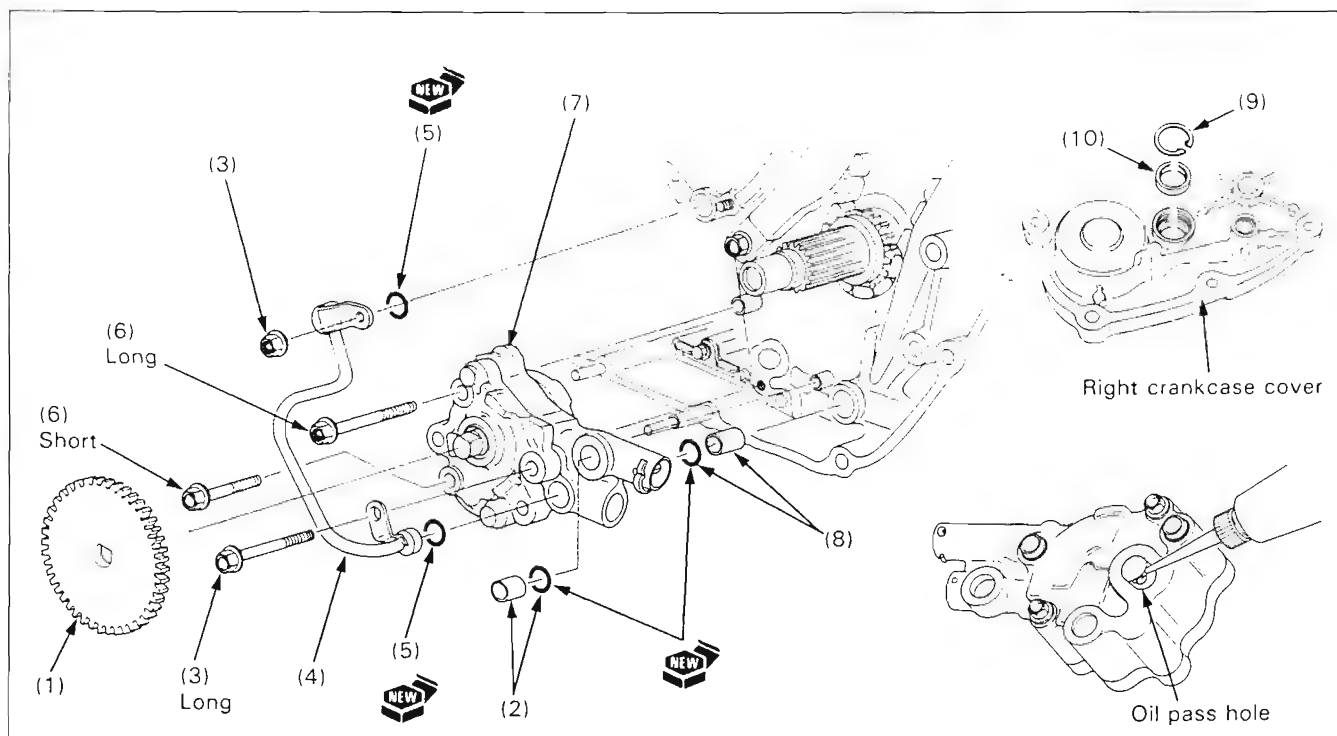
High Oil Pressure

- Pressure relief valve stuck closed
- Incorrect oil being used

Lubrication System Diagram



Oil Pump Removal/Installation



NOTE

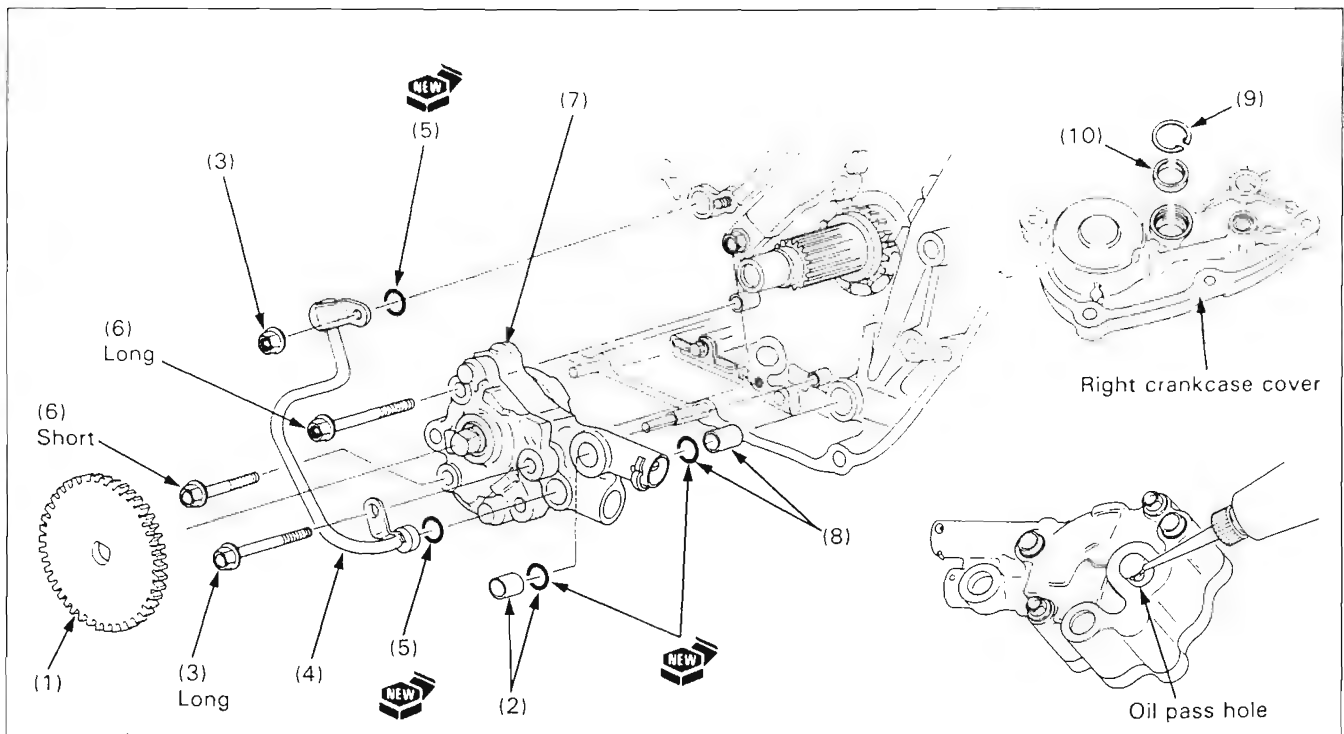
- Before installation, pour clean engine oil into the oil pass hole in oil pump body. Turn the pump shaft counterclockwise until oil flows out of the oil pass hole in the check valve housing side.

Requisite Service

- Primary drive gear removal/installation (page 7-7).

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Oil pump driven gear	1	
(2)	Collar/O-ring	1/1	
(3)	Oil pipe nut/oil pump mounting bolt	1/1	
(4)	Oil pipe	1	
(5)	O-ring	2	
(6)	Oil pump mounting bolt	2	
(7)	Oil pump assembly	1	Disassembly/assembly (page 4-4)
(8)	Oil orifice/O-ring	1/1	
(9)	Snap ring	1	Remove from right crankcase cover.
(10)	Oil seal	1	

Oil Pump Removal/Installation



NOTE

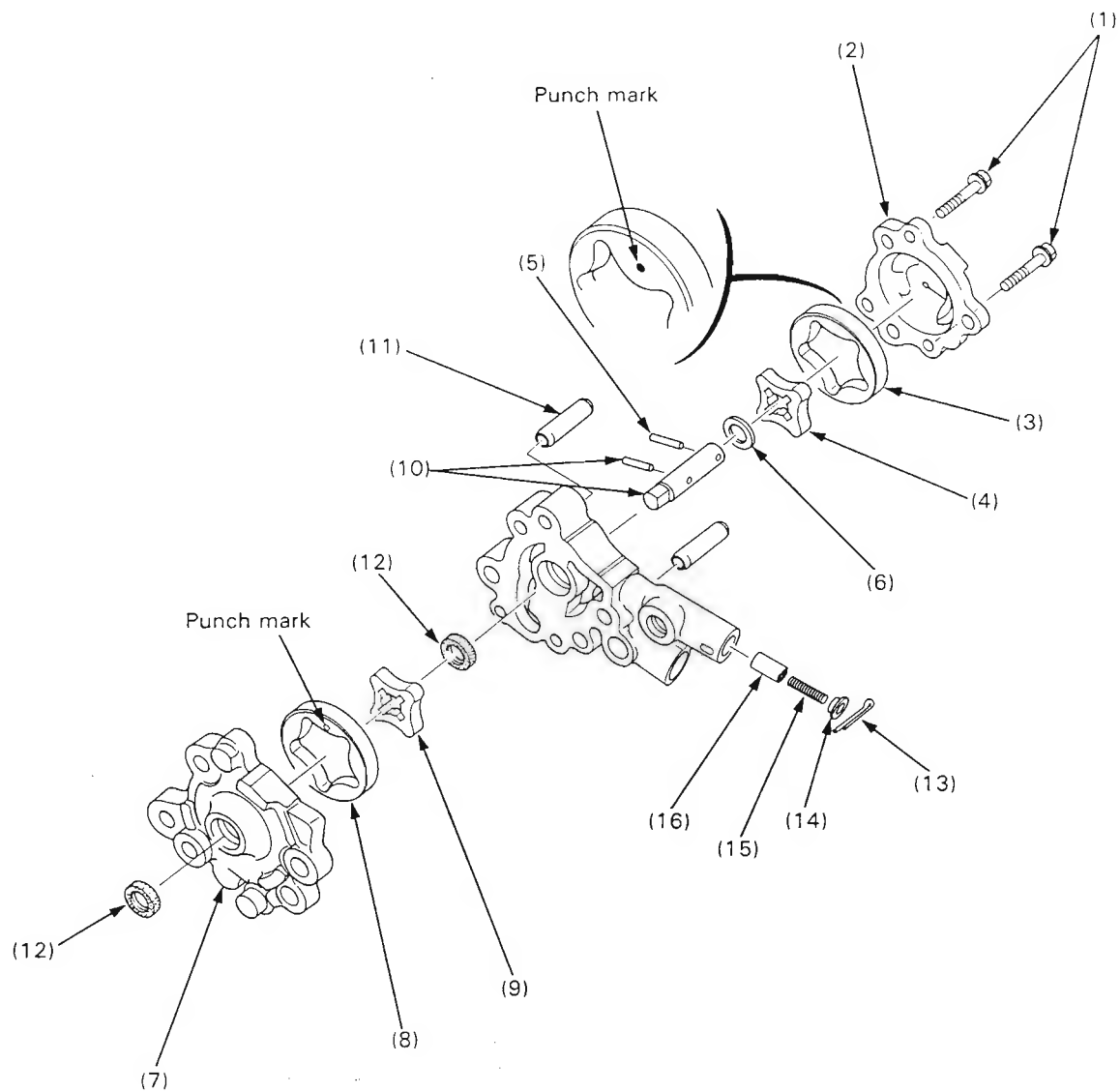
- Before installation, pour clean engine oil into the oil pass hole in oil pump body.
Turn the pump shaft counterclockwise until oil flows out of the oil pass hole in the check valve housing side.

Requisite Service

- Primary drive gear removal/installation (page 7-7).

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Oil pump driven gear	1	
(2)	Collar/O-ring	1/1	
(3)	Oil pipe nut/oil pump mounting bolt	1/1	
(4)	Oil pipe	1	
(5)	O-ring	2	
(6)	Oil pump mounting bolt	2	
(7)	Oil pump assembly	1	Disassembly/assembly (page 4-4)
(8)	Oil orifice/O-ring	1/1	
(9)	Snap ring	1	Remove from right crankcase cover.
(10)	Oil seal	1	

Oil Pump Disassembly/Assembly



NOTE

- The inner and outer rotor As are thinner than the rotor Bs. Do not interchange the rotors A and B when assembling.

Requisite Service

- Oil pump removal/installation (page 4-3)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of removal.
(1)	Oil pump body bolt	2	
(2)	Oil pump body B	1	
(3)	Outer rotor B	1	At assembly, install with the punch mark facing the pump body.
(4)	Inner rotor B	1	At assembly, align the cutout with the lock pin.
(5)	Lock pin	1	
(6)	Thrust washer	1	
(7)	Oil pump body A	1	
(8)	Outer rotor A	1	At assembly, install with the punch mark facing the pump body.
(9)	Inner rotor A	1	At assembly, align the cutout with the lock pin.
(10)	Pump shaft/lock pin	1/1	
(11)	Dowel pin	2	
(12)	Oil seal	2	
(13)	Cotter pin	1	Be careful that the spring seat and valve spring do not pop out.
(14)	Spring seat	1	
(15)	Valve spring	1	
(16)	Pressure relief valve	1	Clean or replace as necessary. Assemble with the sealed side facing in.

Oil Strainer Screen, Oil Strainer Nut

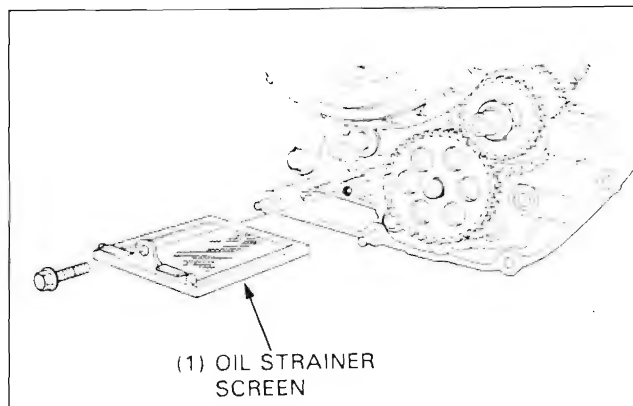
Cleaning

Oil Strainer Screen

Remove the right crankcase cover (page 7-2).
Remove the bolt and strainer screen.

Check to see if there is any dirt or debris on the oil strainer screen which might hinder the flow of oil.
Clean the screen in solvent if any deposits are found.

Install and secure the oil strainer with the bolt.
Install the right crankcase cover (page 7-2).



Oil Strainer Nut

Remove the engine guard (page 2-8).
Loosen the oil inlet pipe flare nut and disconnect the pipe from the oil strainer nut.

Remove the oil strainer nut from the frame down tube.

Clean the screen on the oil strainer nut in solvent and blow dry with compressed air.

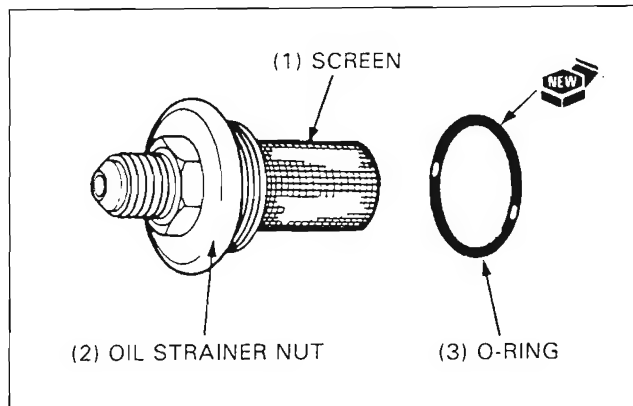
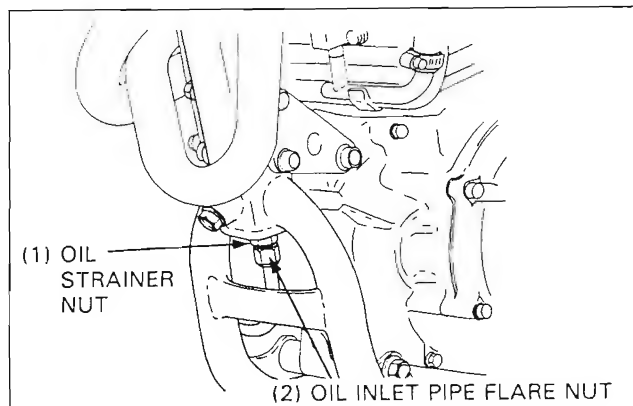
Reinstall and tighten the oil strainer nut.

Torque: 55 N·m (5.5 kg-m, 40 ft-lb)

Connect the inlet pipe and secure it with the flare nut.

Torque: 40 N·m (4.0 kg-m, 29 ft-lb)

Reinstall the engine guard (page 2-8).



5. Fuel System

Service Information	5-1	Air Cleaner Case Removal/Installation	5-9
Troubleshooting	5-2	Pilot Screw Adjustment	5-10
Carburetor Removal/Installation	5-4	High Altitude Adjustment (U.S.A. Only)	5-11
Carburetor Disassembly/Assembly	5-6	Emission Control System	5-12
Carburetor Tube Routing	5-8		

Service Information

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
 - Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.
-
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

CAUTION

- Be sure to remove the diaphragms before cleaning air and fuel passages with compressed air. The diaphragms might be damaged.
-
- Refer to section 2 for fuel tank removal and installation.
 - When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
 - Before removing the carburetor, place an approved gasoline container under the carburetor drain tube, loosen the drain bolt and drain the carburetor.
 - After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with pieces of tape to prevent any foreign material from dropping into the engine.
-
- California Model Only:
All hoses used in the evaporative emission control system are numbered for identification. When connecting one of these hose, compare the hoses number with the Vacuum Hose Routing Diagram Label, page 1-30.

NOTE

- If the vehicle is to be stored for more than one month, drain the float bowl. Fuel left in the float bowl may cause clogged jets resulting in hard starting or poor driveability.

Troubleshooting

Engine Won't Start

- Too much fuel getting to the engine
 - Air cleaner clogged
 - Flooded carburetor
- Intake air leak
- Fuel contaminated/deteriorated
- No fuel to carburetor
 - Fuel strainer clogged
 - Fuel tube clogged
 - Fuel valve stuck
 - Float level misadjusted
 - Fuel tank breather hole clogged

Lean Mixture

- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Throttle valve faulty
- Vacuum piston faulty

Rich Mixture

- Bystarter valve in ON position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

Engine Stalls, Hard to Start, Rough Idling

- Carburetor choke cable misadjusted
- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather hole clogged
- Pilot screw misadjusted
- Slow circuit or by-starter circuit clogged
- Emission control system malfunction (U.S.A. only)
 - purge control valve (PCV) faulty (California type only)
 - loose, disconnected or deteriorated hoses of the emission control system

Afterburn When Engine Braking is Used

- Lean mixture in slow circuit
- Emission control system malfunction (U.S.A. only)
 - secondary air supply system faulty
 - loose, disconnected or deteriorated hoses of the emission control system

Backfiring or Misfiring During Acceleration

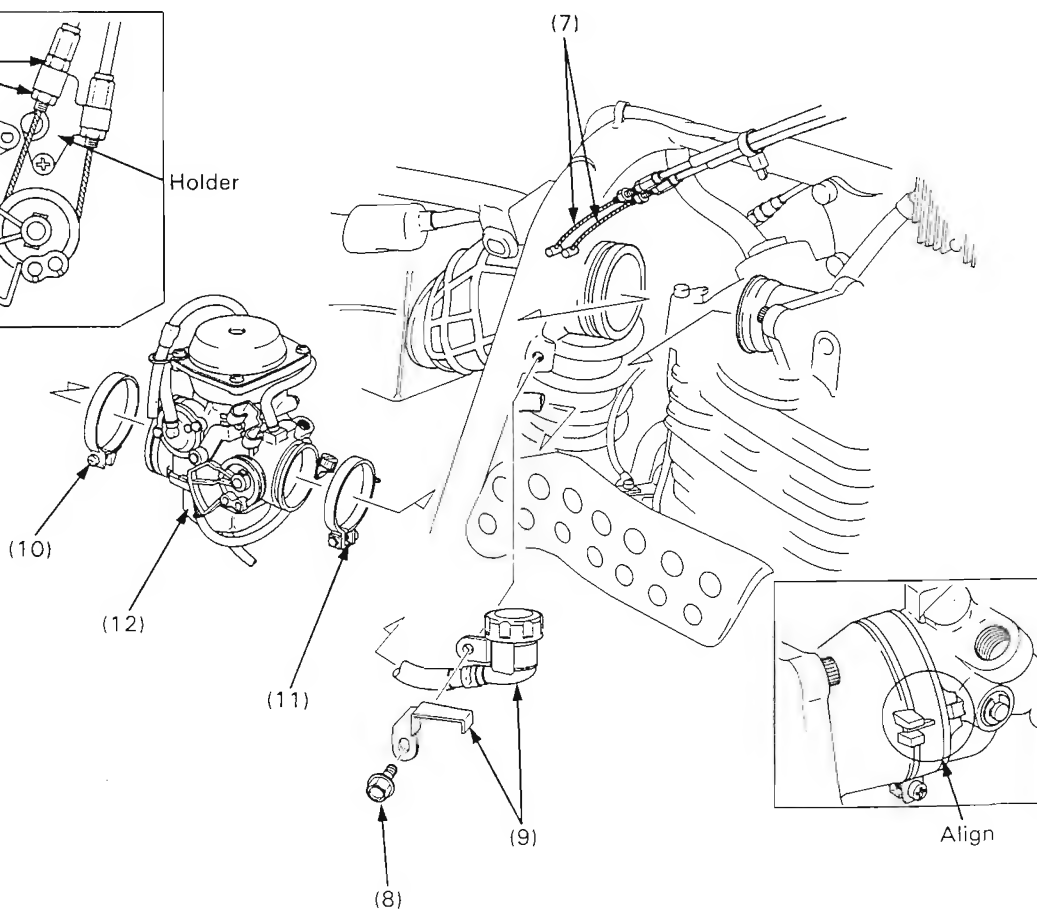
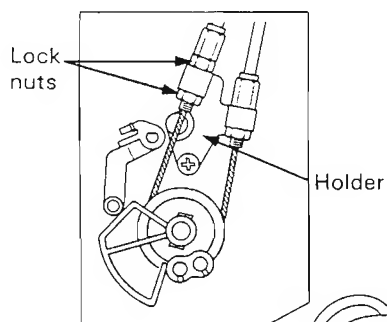
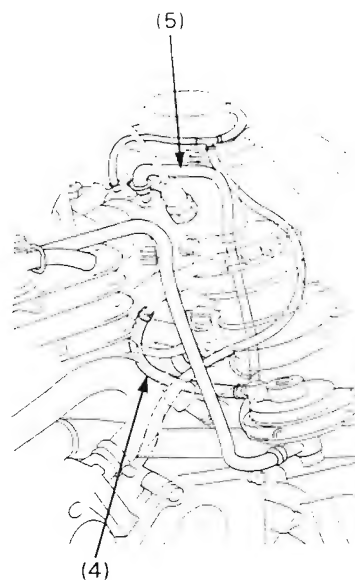
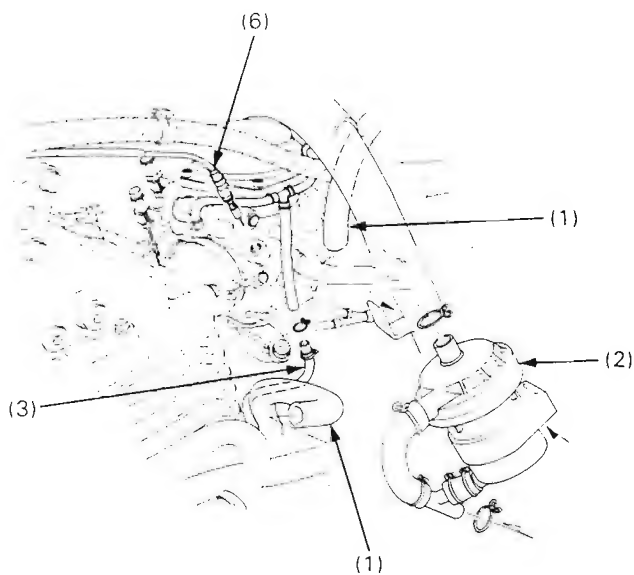
- Ignition system faulty
- Fuel mixture too lean

Poor Performance (Driveability) and Poor Fuel Economy

- Fuel system clogged
- Ignition malfunction
- Emission control system malfunction (U.S.A. only)
 - loose, disconnected or deteriorated hoses of the emission control system

MEMO

Carburetor Removal/Installation



▲WARNING

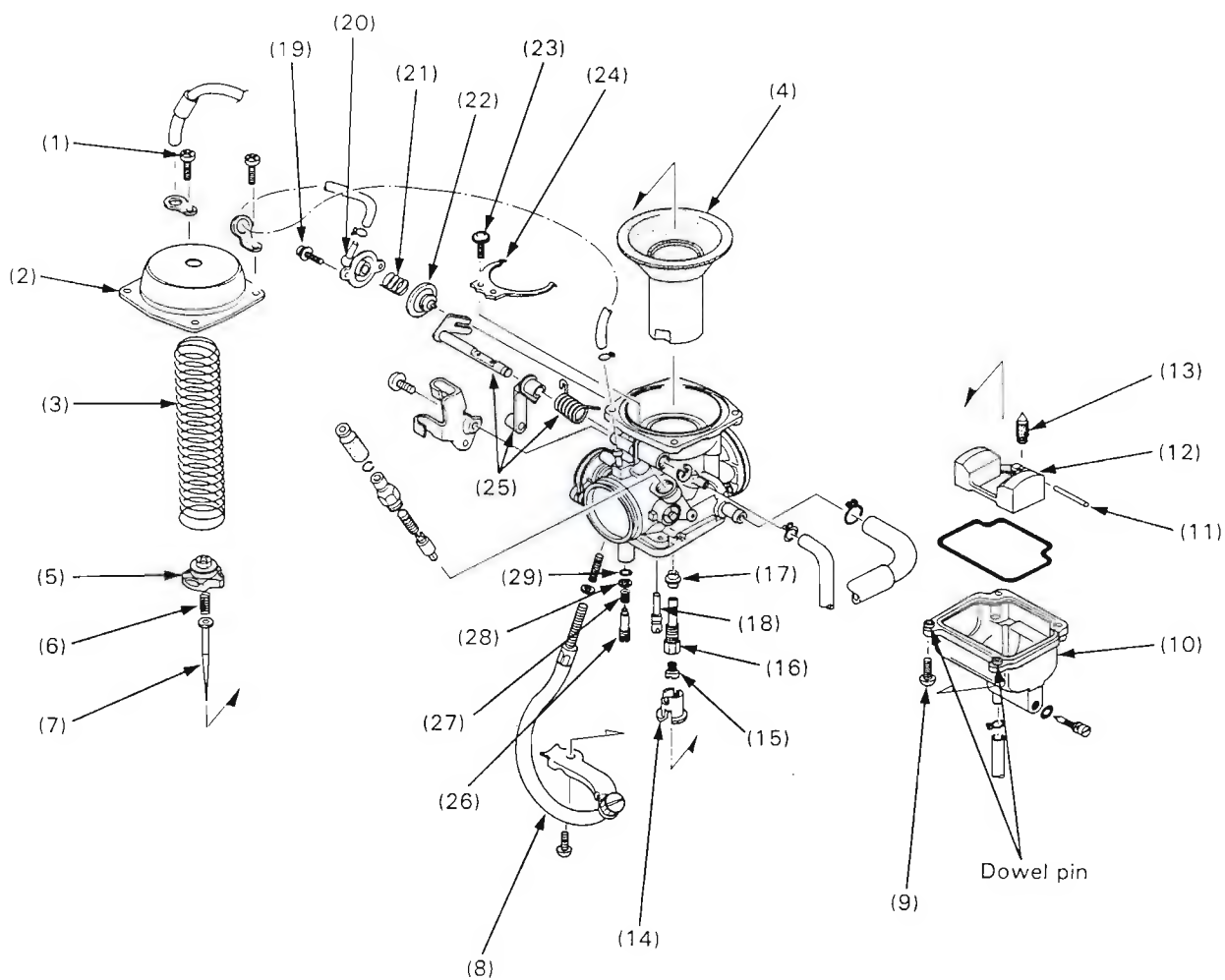
- Gasoline is extremely flammable and is explosive under certain conditions.
- Work in well ventilated area. Smoking or allow flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.

Requisite Service

- Fuel Tank Removal/Installation (page 2-3)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Separator tube	2	
(2)	Breather separator	1	
(3)	AICV vacuum tube	1	Disconnect from the tube joint. U.S.A. only
(4)	No. 11 tube	1	California type only
(5)	No. 5 tube	1	
(6)	By-starter cable	1	
(7)	Throttle cable	2	<ul style="list-style-type: none"> • Disconnect and remove from the holder. • At installation, install the two lock nut installed cable onto upper side of the holder.
(8)	Brake reservoir mounting bolt	1	
(9)	Brake reservoir/plate	1/1	CAUTION <ul style="list-style-type: none"> • Keep reservoir upright, to prevent air from entering the system.
(10)	Connecting tube band screw	1	Only loosen.
(11)	Insulator band screw	1	At installation, align the insulator band pin and carburetor projection with the insulator grooves, and tighten the band screw.
(12)	Carburetor assembly	1	Move the carburetor out of the frame to the right. Disassembly/assembly (page 5-6)

Carburetor Disassembly/Assembly



NOTE

- The vacuum chamber and float chamber can be serviced with the carburetors assembled.
- The pilot screw is factory pre-set and should not be removed unless the carburetor is overhauled.
Turn the pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the pilot screw. If new pilot screw is installed, turn pilot screw out to the initial opening before making a pilot screw adjustment (page 5-10).

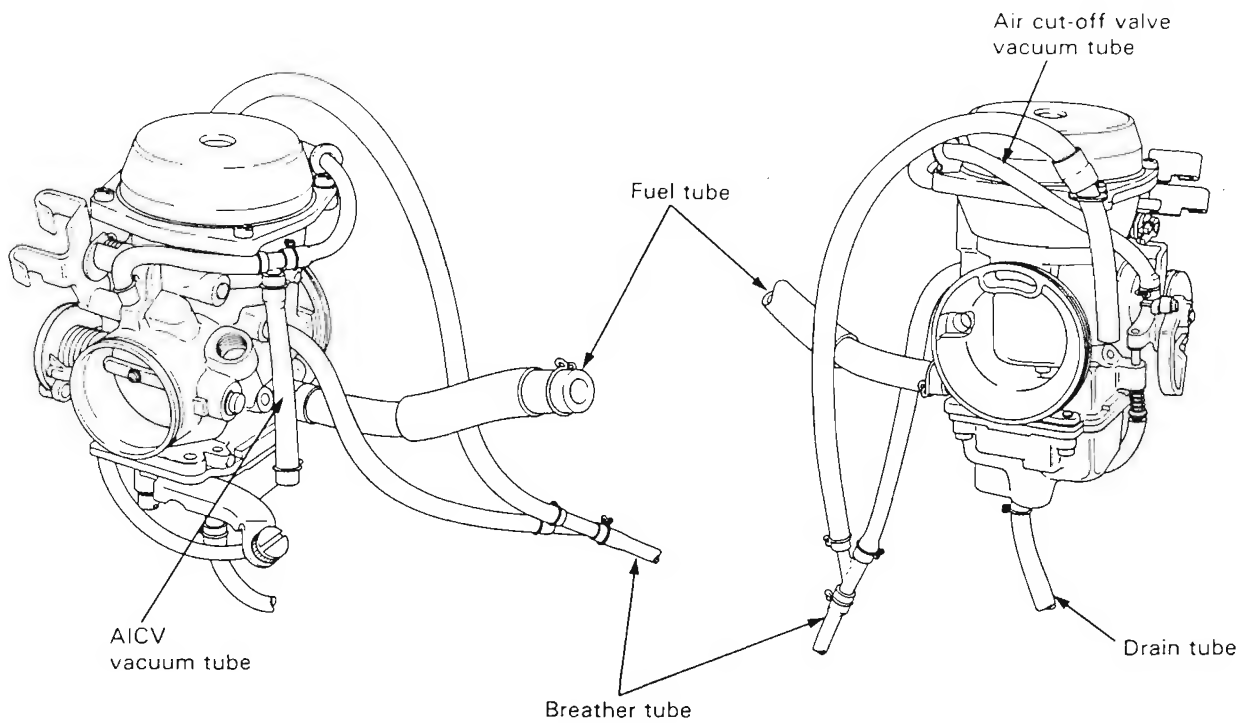
Requisite Service

- Carburetor removal/installation (page 5-4)
- Carburetor Tube Routing (page 5-8)

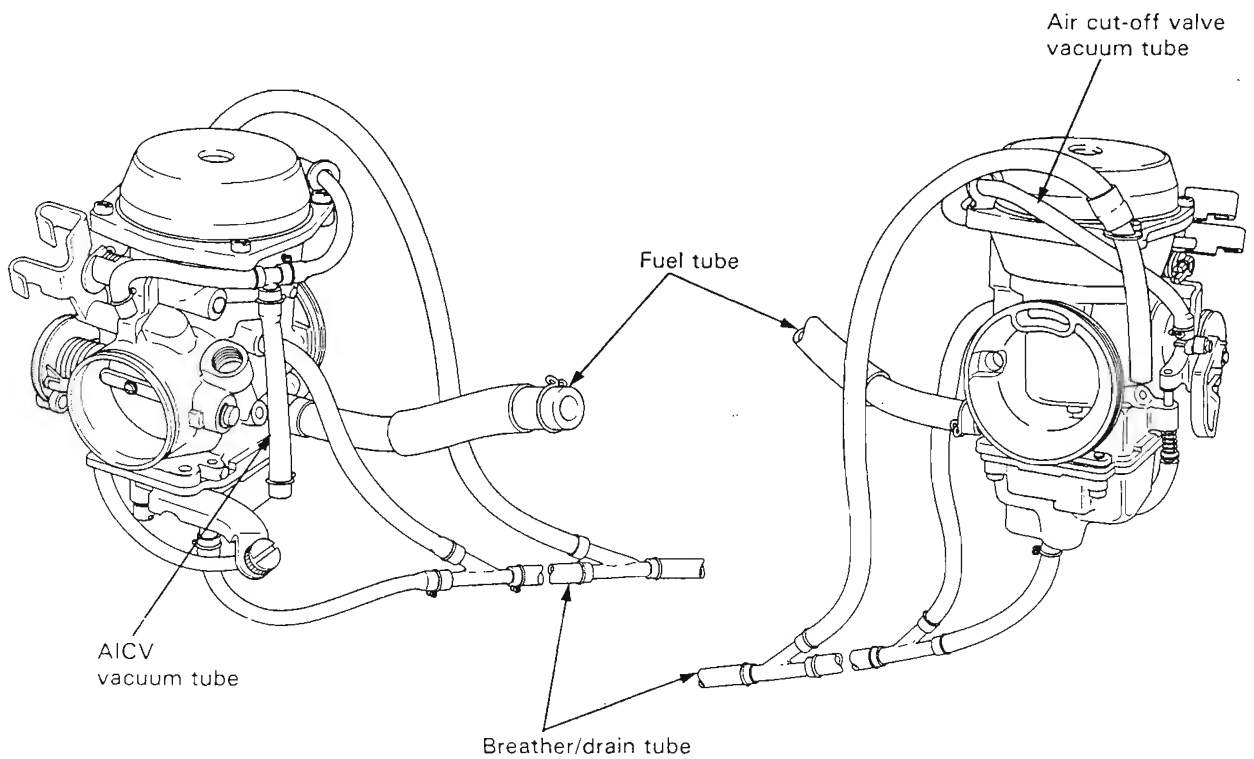
Procedure		Q'ty	Remarks
Vacuum Chamber Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Chamber cover screw	4	Push down on the needle holder and turn it counterclockwise 90 degrees with an 8 mm socket.
(2)	Vacuum chamber cover	1	
(3)	Compression spring	1	
(4)	Diaphragm/vacuum piston	1	
(5)	Needle holder	1	
(6)	Holder spring	1	
(7)	Jet needle	1	
Float Chamber Disassembly Order			At installation, first tighten the two screws on the dowel pin side.
(8)	Throttle stop screw	1	
(9)	Float chamber screw	4	
(10)	Float chamber	1	
(11)	Float pin	1	
(12)	Float	1	
(13)	Float valve	1	
(14)	Baffle	1	
(15)	Main jet	1	
(16)	Needle jet holder	1	
(17)	Needle jet	1	
(18)	Slow jet	1	
Air Cut-off Valve Disassembly Order			
(19)	Cover screw	2	
(20)	Air cut-off valve cover	1	
(21)	Diaphragm spring	1	
(22)	Diaphragm	1	
Link Shaft Disassembly Order			
(23)	Link arm screw	1	
(24)	Link arm	1	
(25)	Link shaft assembly	1	
Pilot Screw Disassembly Order			
(26)	Pilot screw	1	
(27)	Spring	1	
(28)	Washer	1	
(29)	O-ring	1	

Carburetor Tube Routing

49 State Type

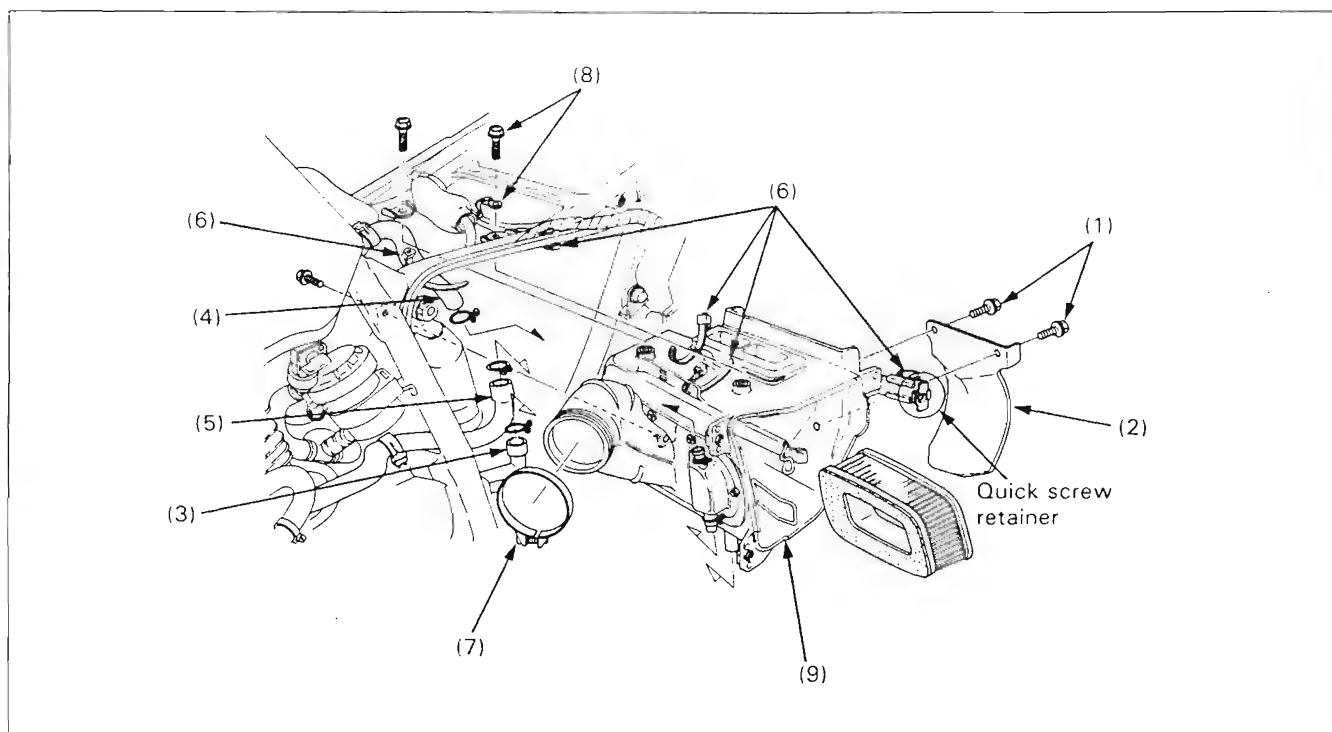


California Type



• For Canada type, refer to page 1-25.

Air Cleaner Case Removal/Installation



Requisite Service

- Seat Removal/Installation (page 2-2).

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Mud guard bolt	2	
(2)	Mud guard	1	
(3)	Air cleaner breather tube	1	
(4)	Breather separator hose	1	
(5)	Air suction hose	1	U.S.A. only
(6)	Harness band/clamp	3/2	Release the wire harness from the bands and clamp.
(7)	Connecting tube band screw	1	Only loosen.
(8)	Air cleaner case mounting bolt/ground cable	3/1	
(9)	Air cleaner case assembly	1	Move the air cleaner case out of the frame to the left. CAUTION • Be careful not to bend the rear left side cover quick screw retainer.

Pilot Screw Adjustment

Idle Drop Procedure

WARNING

- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.
The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

NOTE

- The pilot screw is factory pre-set and no adjustment is necessary unless the pilot screw is replaced.
- Use a tachometer with graduations of 50 rpm change.

1. Turn the pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

CAUTION

- Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.

Initial Opening:

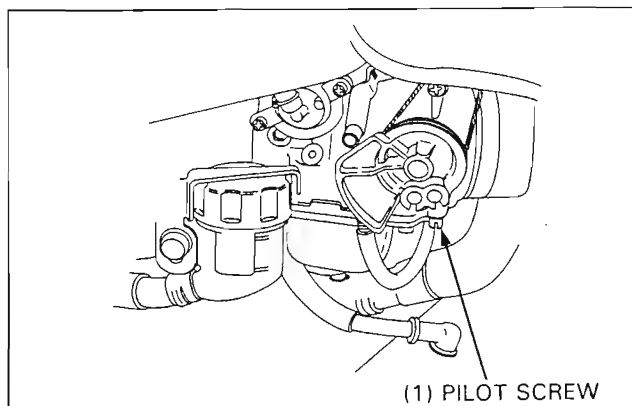
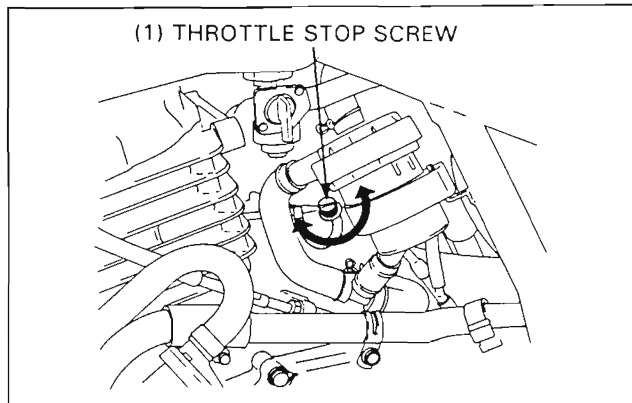
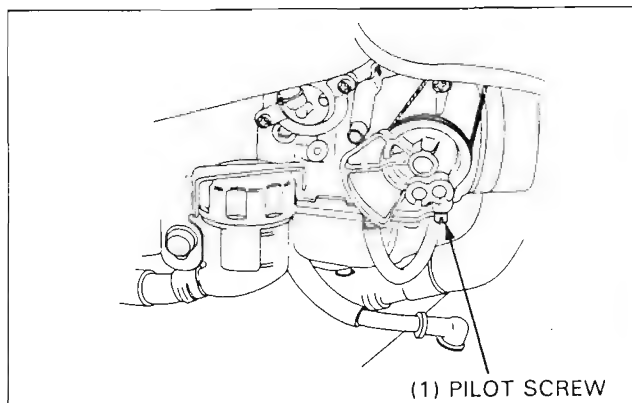
Type	Frame Serial Number	Initial Opening
49 State	"PM-000001" — "PM-000958"	2 • 3/4
	After "PM-000958"	2 • 1/4
California	"PM-000001" — "PM-000078"	2 • 3/4
	After "PM-000078"	2 • 1/4
Canada	All products	2 • 1/4

2. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
3. Attach a tachometer according to the manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop screw.

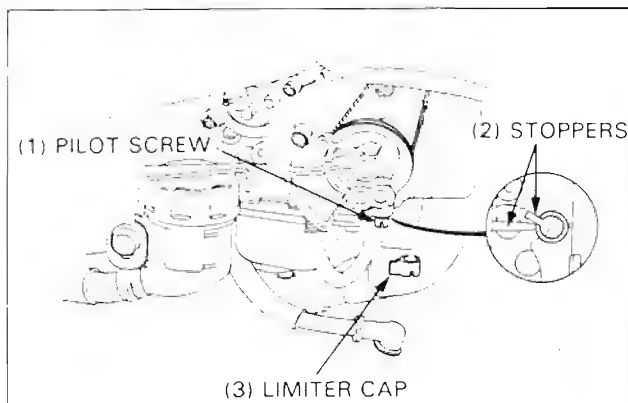
Idle Speed: 1,300 ± 100 rpm

5. Turn the pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the pilot screw in gradually until the engine speed drops 50 rpm.
8. Turn the pilot screw counterclockwise to the final opening from the position obtained in step 7.

Final Opening: 3/4 turns out



9. Apply Loctite 601 or equivalent to the inside of the limiter cap. Place the cap over the pilot screw so that they can be turned clockwise only. This will prevent adjustment in the counterclockwise direction which riches the fuel mixture.



High Altitude Adjustment (U.S.A. Only)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetor must be readjusted as follows to improve driveability and decrease exhaust emissions. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient. Turn the pilot screw clockwise 1/2 turn. Adjust the idle speed to $1,300 \pm 100$ rpm with the throttle stop screw.

High Altitude Setting: 1/2 turn in

NOTE

- This adjustment must be made at high altitude to ensure proper high altitude operation.

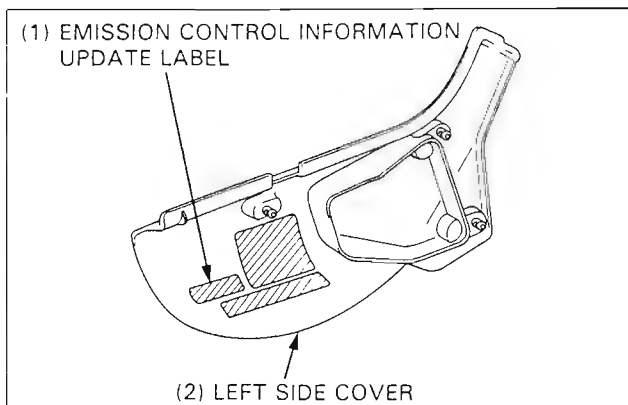
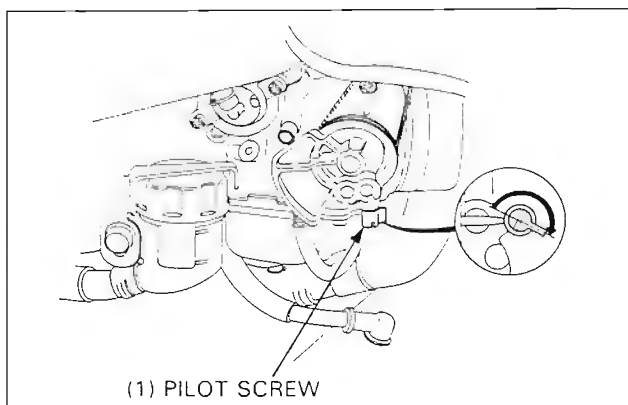
Attach a Vehicle Emission Control Information Update Label to the inside of the left side cover as shown in the label position illustration.

NOTE

- Do not attach the label to any part that can be easily removed from the vehicle.

WARNING

- Sustained operation at an altitude lower than 5,000 feet (1,500 m) with the carburetor adjusted for high altitude may cause the engine to idle roughly and stall in traffic. It may also cause engine damage due to overheating.



VEHICLE EMISSION CONTROL INFORMATION UPDATE
- HONDA MOTOR CO., LTD

THIS VEHICLE HAS BEEN ADJUSTED TO
IMPROVE EMISSION CONTROL PERFORMANCE
WHEN OPERATED AT HIGH ALTITUDE.



ALTITUDE PERFORMANCE ADJUSTMENT INSTRUCTIONS
ARE AVAILABLE AT YOUR AUTHORIZED HONDA DEALER.

Fuel System

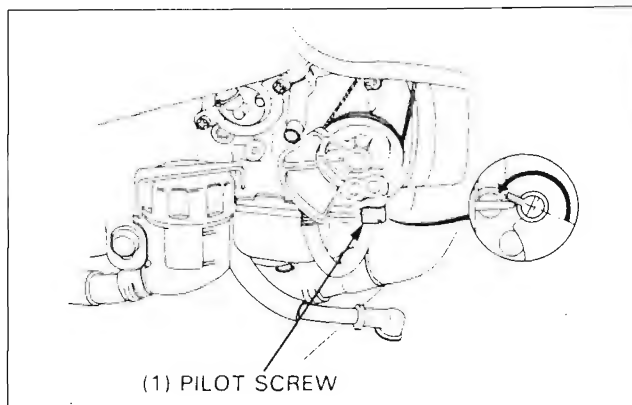
When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn the pilot screw to the Low Altitude Setting specified below.

Low Altitude Setting: 1/2 turn out

Adjust the idle speed to $1,300 \pm 100$ rpm with the throttle stop screw.

Be sure to make these adjustments at low altitude.

Remove the Vehicle Emission Control Information Update Label that is attached to the inside of the left side cover after adjusting for low altitude.



Emission Control System

Secondary Air Supply System (U.S.A. only)

NOTE

- The ASV has reed valve built into the AICV.

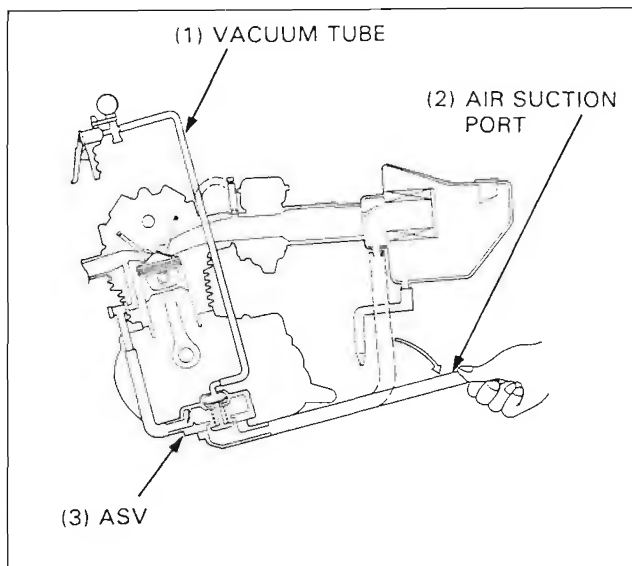
Disconnect the vacuum tube [routed from the air suction valve (ASV)] from the tube joint.

Plug the joint and connect the vacuum pump to the vacuum tube.

Disconnect the air suction hose from the air cleaner case and put your finger hose end (air suction port).

Perform the secondary air supply system inspection (refer to section 7 of the Common Service Manual).

Specified vacuum: 330 mmHg (13.0 inHg)

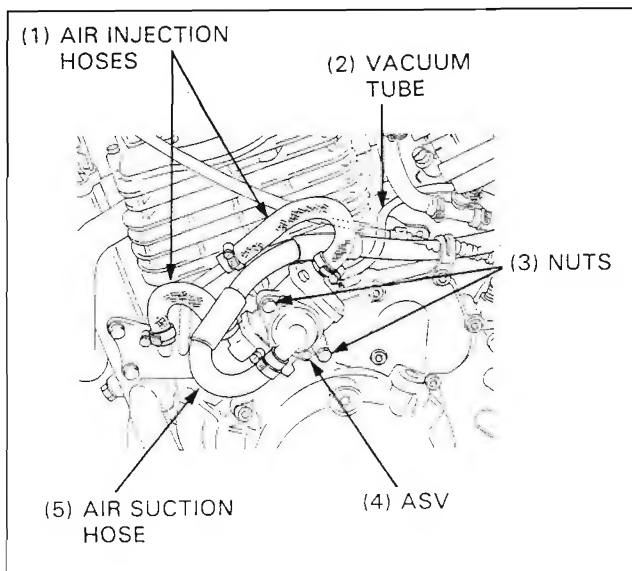


Air Suction Valve (ASV) Removal/Installation

Remove the screws, disconnect the air suction hose and air injection hoses from the ASV.

Remove the ASV mounting nuts and ASV.
Disconnect the vacuum tube from the ASV.

Install the ASV in the reverse order of removal.



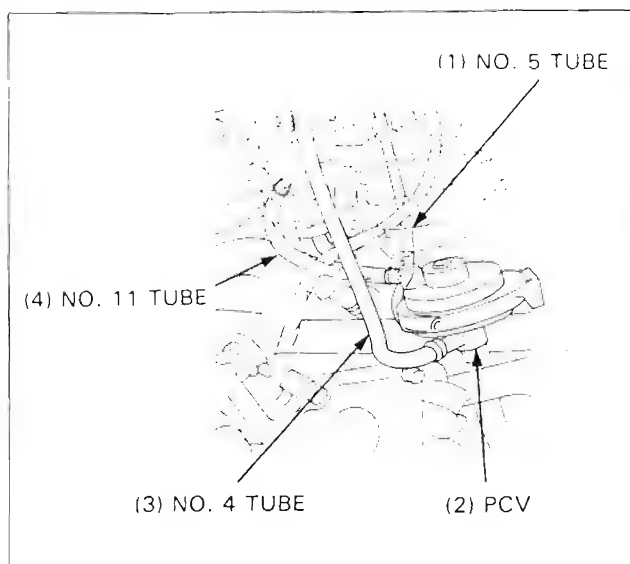
Purge Control Valve (PCV) Removal/Installation (California type only)

Disconnect the No. 11, No. 4 and No. 5 tubes from the PCV and remove the PCV from the frame.

Install the PCV in the reverse order of removal.

NOTE

- For PCV tube routing, see page 1-26.



MEMO

6. Engine Removal/Installation

Service Information

6-1 Engine Removal/Installation

6-4

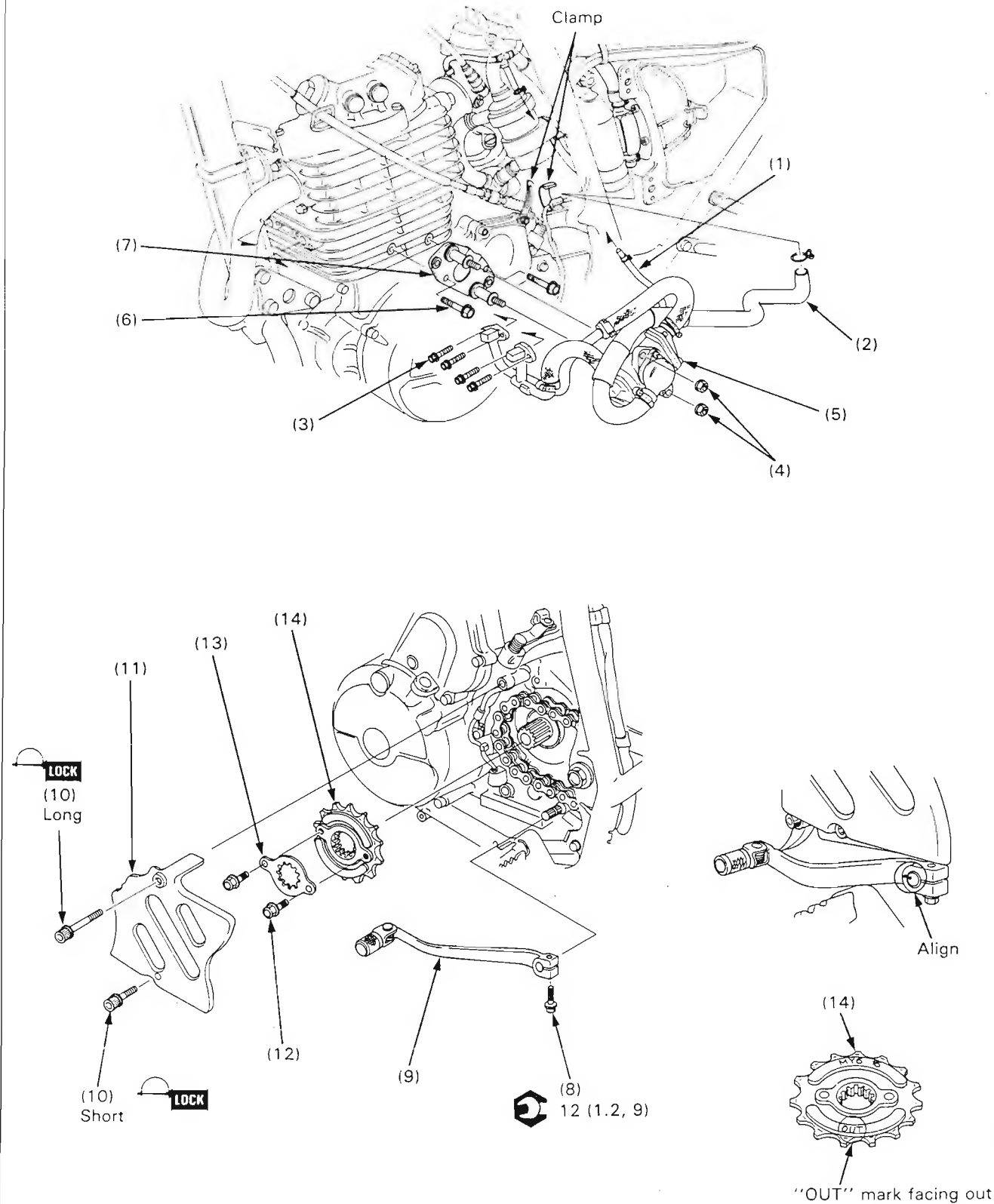
Drive Sprocket, ASV Removal/Installation 6-2

Service Information

- A floor jack or other adjustable support is required to support and maneuver the engine.
- When removing/installing the engine, tape the frame around the engine beforehand for frame protection.
- The following components can be serviced with the engine installed in the frame.
 - Oil pump (Section 4)
 - Carburetor (Section 5)
 - Clutch/gearshift cam (Section 7)
 - Camshaft (Section 8)
 - Cylinder head (Section 8)
 - Cylinder/piston (Section 9)
 - Alternator (Section 14)
 - Pulse generator (Section 15)
 - Starter clutch (Section 16)
 - Starter motor (Section 16)
- The following components require engine removal for service.
 - Transmission/shift forks/gearshift spindle, shift drum (Section 10)
 - Crankshaft/balancer (Section 11)

6

Drive Sprocket, ASV Removal/Installation



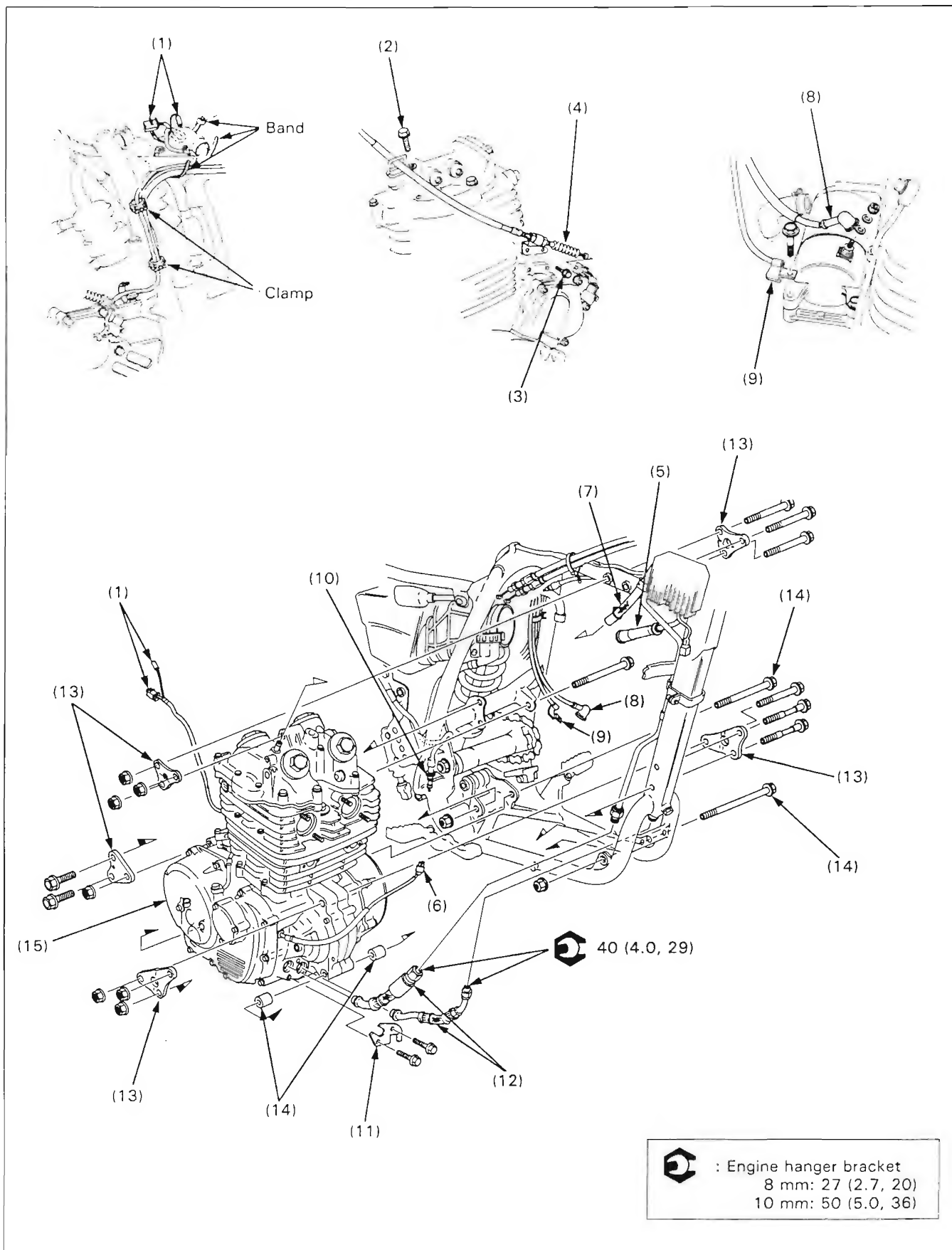
Requisite Service

- Side cover removal/installation (page 2-2)

- Loosen the rear axle nut and drive chain in slack fully.

Procedure		Q'ty	Remarks
ASV Removal Order (U.S.A. only)			
(1)	AICV vacuum tube	1	Installation is in the reverse order of removal. Remove from the tube joint.
(2)	Air suction hose	1	
(3)	Air injection pipe bolt	4	Release the hose from the clamps.
(4)	ASV mounting nut	2	
(5)	ASV/hose assembly	1	
(6)	ASV stay bolt	2	
(7)	ASV stay	1	
Drive Sprocket Removal Order			
(8)	Gearshift pedal pinch bolt	1	At installation, align the punch marks.
(9)	Gearshift pedal	1	
(10)	Drive sprocket cover bolt	2	
(11)	Drive sprocket cover	1	
(12)	Setting plate bolt	2	At installation, install onto the countershaft and align the bolt holes on the plate with the holes of the sprocket.
(13)	Drive sprocket setting plate	1	
(14)	Drive sprocket	1	At installation, install with the OUT mark facing out.

Engine Removal/Installation



CAUTION

- Turn the ignition switch OFF and disconnect the battery ground (–) terminal.

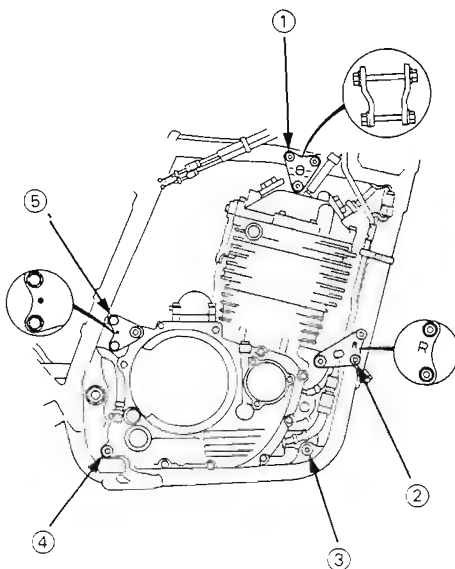
NOTE

- Support the motorcycle using safety stand or a hoist.
- During engine removal/installation, be careful not to pinch the wire harness between the engine and frame.
- Install all engine mounting nuts and bolts loosely, then tighten them to the specified torque.

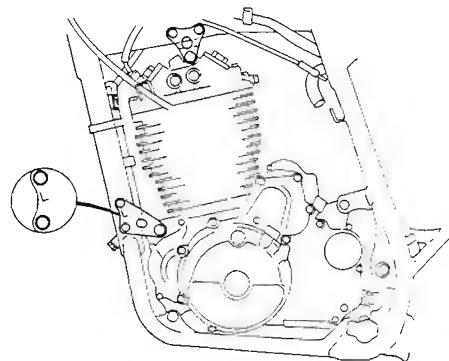
Requisite Service

- Drive sprocket, ASV removal/installation (page 6-2)
- Carburetor removal/installation (page 5-4)
- Engine guard removal/installation (page 2-8)
- PCV, PCV tube removal/installation (California type only) (page 5-12)
- Fuel tank removal/installation (page 2-3)
- Exhaust pipe, muffler removal/installation (page 2-6)
- Rear brake pedal removal/installation (page 13-12)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Alternator/neutral switch wire connector	1/1	Release the wire from the wire bands and clamps.
(2)	Clutch cable clamp bolt	1	
(3)	Clutch cable holder bolt	1	
(4)	Clutch cable	1	
(5)	Spark plug cap	1	
(6)	Pulse generator wire connector	1	Release the wire from the clamp of the down tube.
(7)	Cylinder head cover breather tube	1	
(8)	Starter motor cable	1	
(9)	Ground cable	1	
(10)	Rear brake light switch	1	
(11)	Hose setting plate	1	
(12)	Oil hose	2	
(13)	Engine hanger bracket	5	At installation, note the direction of the brackets and bolts/nuts, and tightening procedure (see below).
(14)	Engine lower mounting bolt/collar	2/2	
(15)	Engine assembly	1	Move the engine out of the frame to the right.



Right side



Left side

MEMO

Service Information	7-1	Clutch Removal/Installation	7-4
Troubleshooting	7-1	Primary Drive Gear Removal/Installation	7-7
Right Crankcase Cover Removal/Installation	7-2	Gearshift Cam Removal/Installation	7-9

Service Information

- This section covers service of the clutch, primary drive gear, gearshift cam and right crankcase cover. All service can be done with the engine in the frame.
- If the gearshift linkage, shift forks and shift drum require servicing, remove the engine and separate the crankcase (Section 10).

Troubleshooting

- Faulty clutch operation can usually be corrected by adjusting the clutch lever free play.

Clutch Slips when Accelerating

- No clutch lever free play
- Worn clutch discs
- Weak clutch springs
- Excessive engine oil

Clutch Operation Feels Rough

- Rough clutch outer slots

Hard to Shift

- Misadjusted clutch cable
- Bent shift fork
- Damaged shift drum groove
- Bent gearshift spindle
- Damaged guide pin

Clutch Lever Too Hard

- Damaged, kinked or dirty clutch cable
- Damaged clutch lifter mechanism
- Damaged clutch lifter plate bearing
- Improperly routed clutch cable

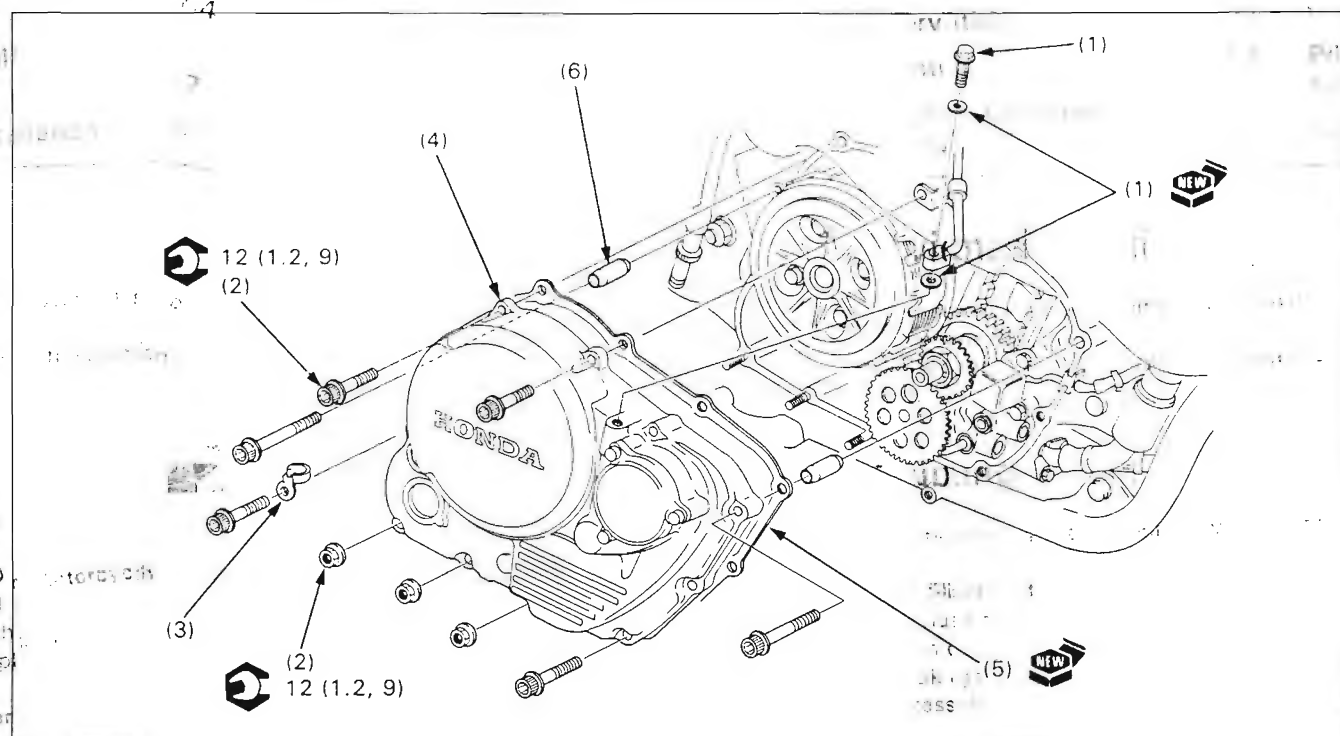
Clutch Will Not Disengage or Motorcycle Creeps with Clutch Disengaged

- Too much clutch lever free play
- Warped clutch plate

Jumps Out of Gear

- Worn gear engagement dogs or slots
- Bent shift fork shaft
- Damaged shifter arm
- Damaged or bent shift fork

Right Crankcase Cover Removal/Installation



NOTE

The engine oil will spill out when the right crankcase cover removed. Place a clean oil pan under the engine to catch it. Add the recommended oil to the specified level after installation.

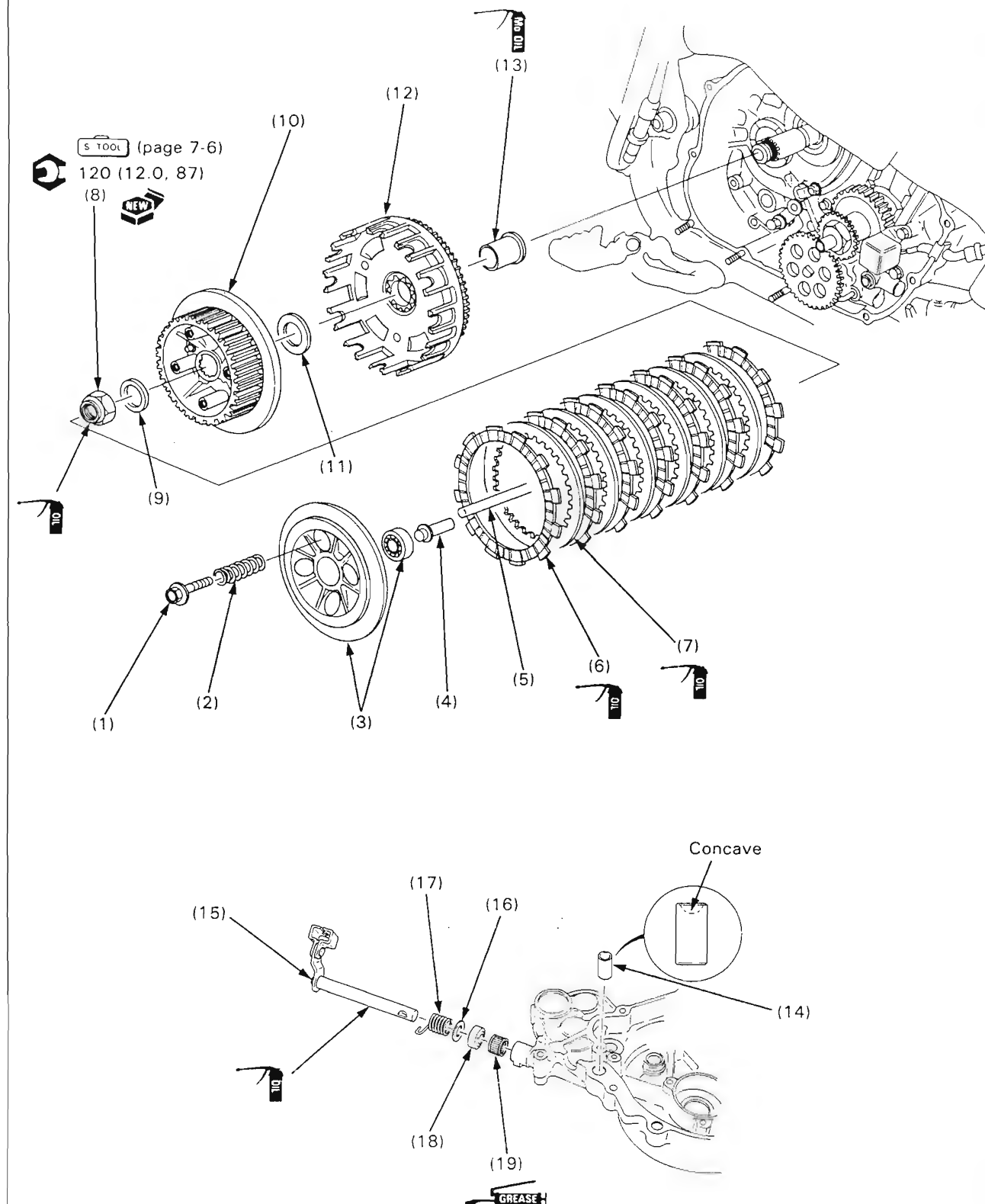
Requisite Service

- Engine guard removal/installation (page 2-8)
- Rear brake pedal removal/installation (page 13-12)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Oil pipe bolt/sealing washer	1/2	
(2)	Right crankcase cover bolt/nut	8/3	
(3)	Brake light switch holder	1	
(4)	Right crankcase cover	1	
(5)	Gasket	1	
(6)	Dowel pin	2	

MEMO

Clutch Removal/Installation



Requisite Service

- Right crankcase cover removal/installation (page 7-2)
- For clutch lifter arm service: Left crankcase cover removal/installation (page 14-8)

Procedure		Q'ty	Remarks
Clutch Removal Order			Installation is in the reverse order of removal.
(1)	Pressure plate bolt	4	Removal/installation (page 7-6)
(2)	Clutch spring	4	
(3)	Clutch pressure plate/bearing	1/1	
(4)	Lifter rod tip	1	
(5)	Clutch lifter rod	1	
(6)	Clutch friction disc	7	
(7)	Clutch plate	6	
(8)	Clutch center lock nut	1	
(9)	Lock washer	1	
(10)	Clutch center	1	
(11)	Plane washer	1	
(12)	Clutch outer	1	
(13)	Clutch outer guide	1	
Clutch Lifter Arm Removal Order			
(14)	Clutch lifter piece	1	At installation, install with concave side facing the lifter rod, and align the bottom of the lifter piece with the groove on the lifter arm turning the lifter arm.
(15)	Clutch lifter arm	1	At installation, turn the lifter arm counterclockwise and hook the lifter spring to the crankcase cover projection.
(16)	Washer	1	Remove from the lifter arm.
(17)	Lifter arm spring	1	
(18)	Dust seal	1	
(19)	Needle bearing	1	

Clutch Center Lock Nut Removal/Installation

NOTE

- Be careful not to damage the mainshaft threads.

Removal

Unstake the lock nut.

Attach the clutch center holder to the clutch center grooves. Loosen the lock nut while holding the clutch center as shown.



Clutch center holder

07724-0050001

Installation

Attach the clutch center holder to the clutch center grooves. Tighten the lock nut while holding the clutch center as shown.

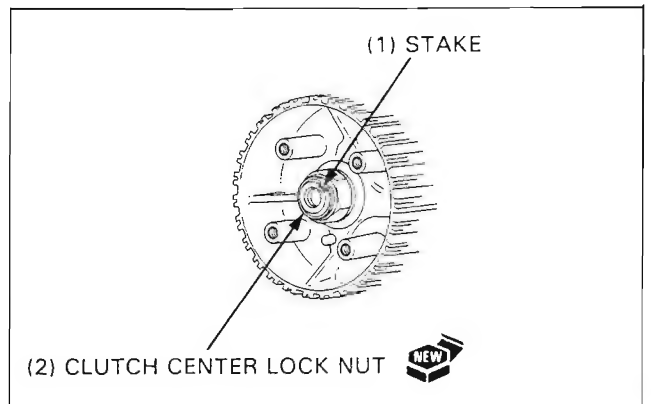
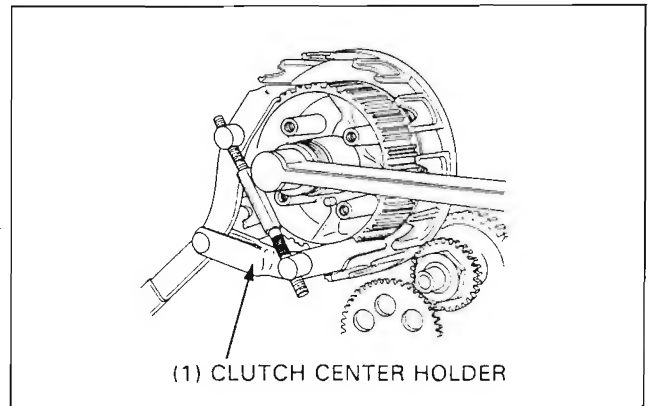
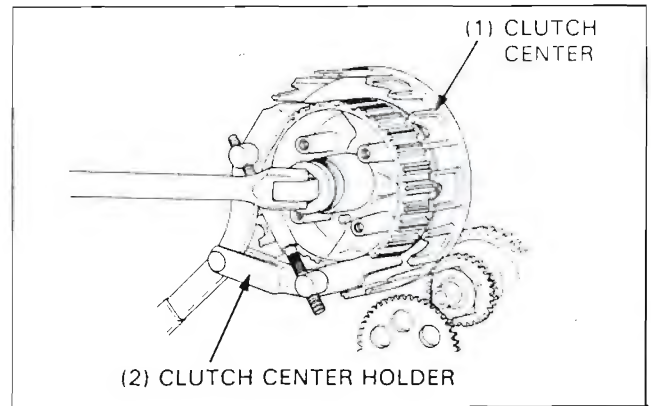


Clutch center holder

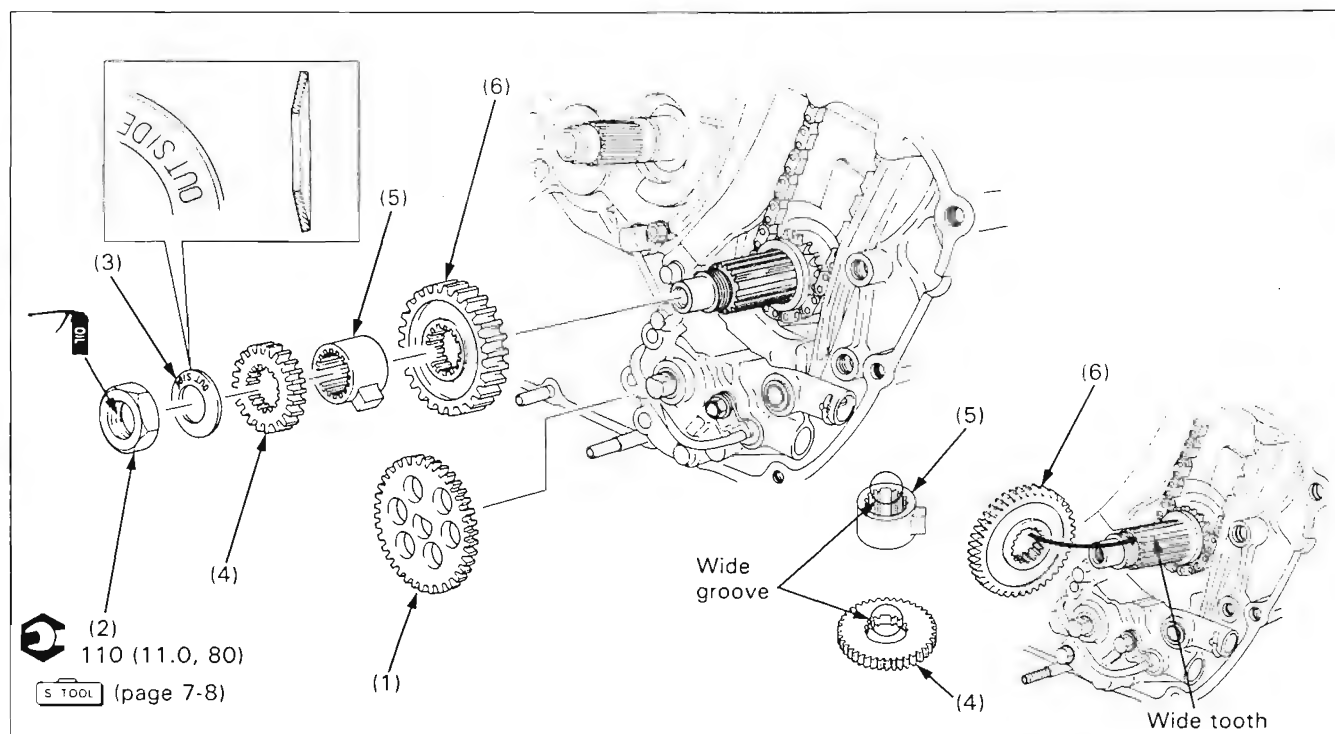
07724-0050001

Torque: 120 N·m (12.0 kg·m, 87 ft·lb)

Stake the lock nut.



Primary Drive Gear Removal/Installation



Requisite Service

• Clutch removal/installation (page 7-2)

• Pulse generator removal/installation (page 15-8)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Oil pump driven gear	1	Removal/installation (page 7-8) At installation, install with the "OUT SIDE" mark facing out.
(2)	Primary drive gear nut	1	
(3)	Washer	1	
(4)	Oil pump drive gear	1	At installation, align the wide groove with the wide tooth of the crankshaft.
(5)	Pulse generator rotor	1	
(6)	Primary drive gear	1	

Clutch

Primary Drive Gear Nut Removal/Installation

Removal

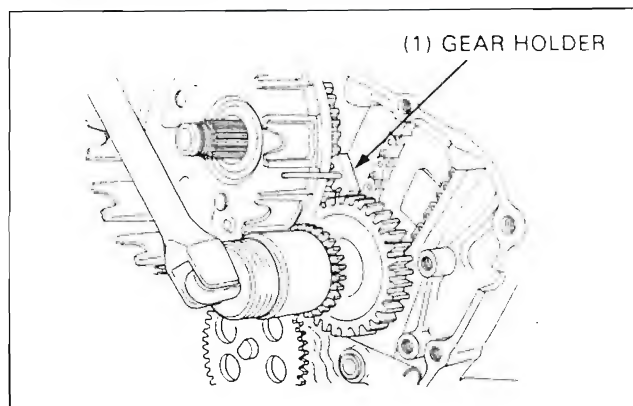
Insert the gear holder as shown.
Remove the primary drive gear nut.

S TOOL

Gear Holder

07724-0010100

Remove the gear holder and clutch outer.



Installation

Install the clutch outer (page 7-4).

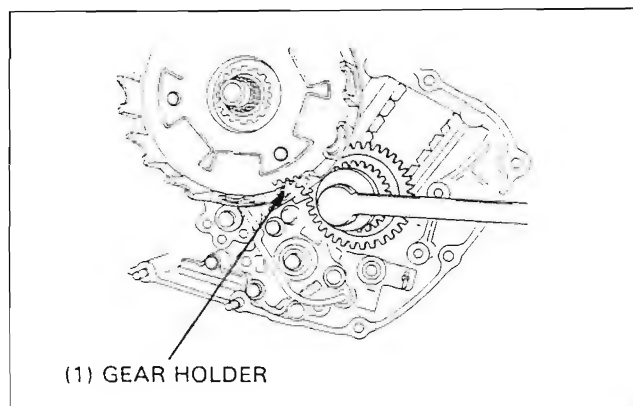
Insert the gear holder as shown.
Tighten the primary drive gear nut.

S TOOL

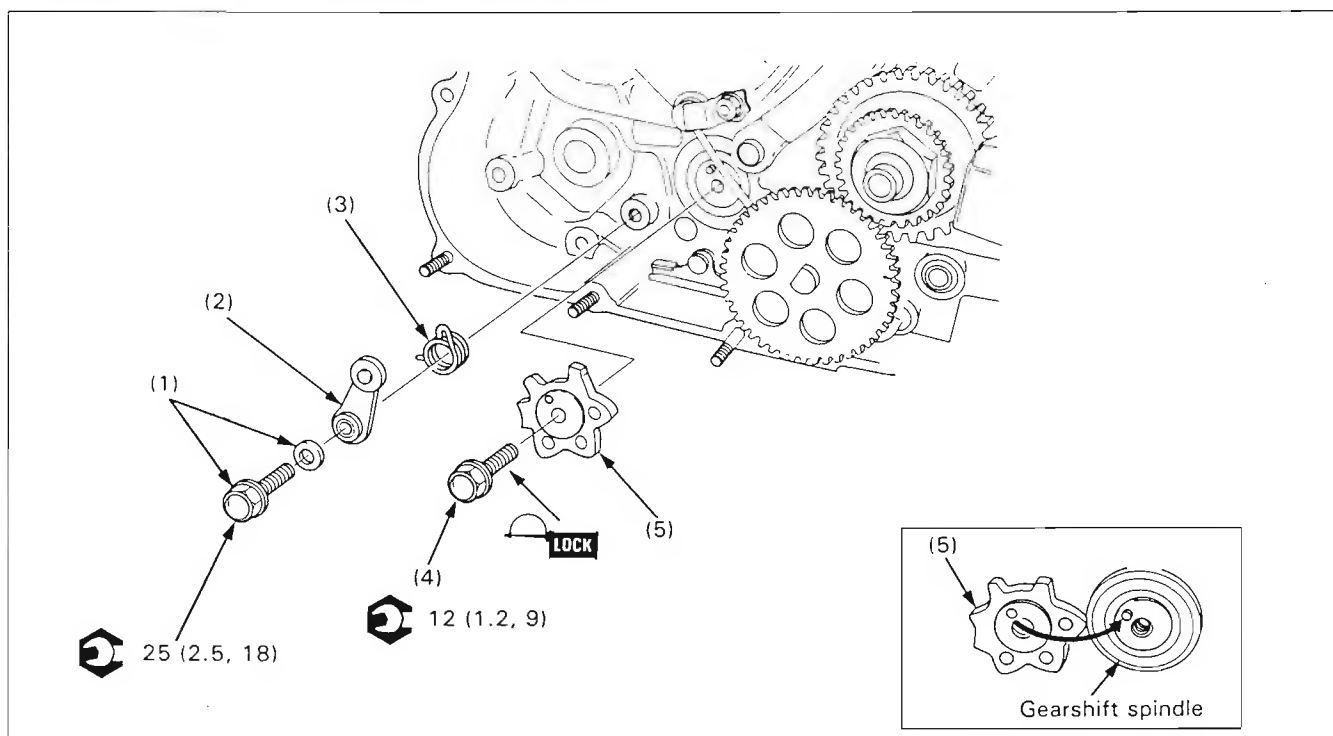
Gear Holder

07724-0010100

Torque: 110 N·m (11.0 kg-m, 80 ft-lb)



Gearshift Cam Removal/Installation



NOTE

- It is not necessary to remove the clutch assembly for gearshift cam and stopper arm removal/installation.
- For gearshift linkage, shift forks and shift drum removal/installation, see page 10-4.

Requisite Service

- Right crankcase cover removal/installation (page 7-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Stopper arm bolt/washer	1/1	
(2)	Stopper arm	1	
(3)	Return spring	1	
(4)	Gearshift cam bolt	1	
(5)	Gearshift cam	1	At installation, align the hole in the cam with the dowel pin of the shift drum.

MEMO

8. Cylinder Head/Valves

Service Information	8-1	Camshaft Removal	8-6
Troubleshooting	8-1	Camshaft Installation	8-7
Cylinder Head Cover Removal/Installation	8-2	Cylinder Head Removal/Installation	8-9
Cylinder Head Cover Disassembly/Assembly	8-4	Cylinder Head Disassembly/Assembly	8-10

Service Information

- This section covers service of the cylinder head, valves, camshaft, rocker arms and sub-rocker arms. This service can be done with the engine in the frame.
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Clean all disassembled parts with clean solvent and dry them by blowing off compressed air before inspection.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their proper locations.

Troubleshooting

- Engine top-end problems usually affect engine performance. This can be diagnosed by a compression or leak down test, or by tracing noises to the top-end with a sounding rod or stethoscope.
- If performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky, check for a seized piston ring.

Compression Too Low, Hard Starting or Poor Performance at Low Speed

- Valves
 - Incorrect valve adjustment
 - Burned or bent valves
 - Incorrect valve timing
 - Broken valve spring
 - Uneven valve seating
- Cylinder head
 - Leaking or damaged head gasket
 - Warped or cracked cylinder head

Compression Too High, Overheating or Knocking

- Excessive carbon built-up in cylinder head or on top of piston

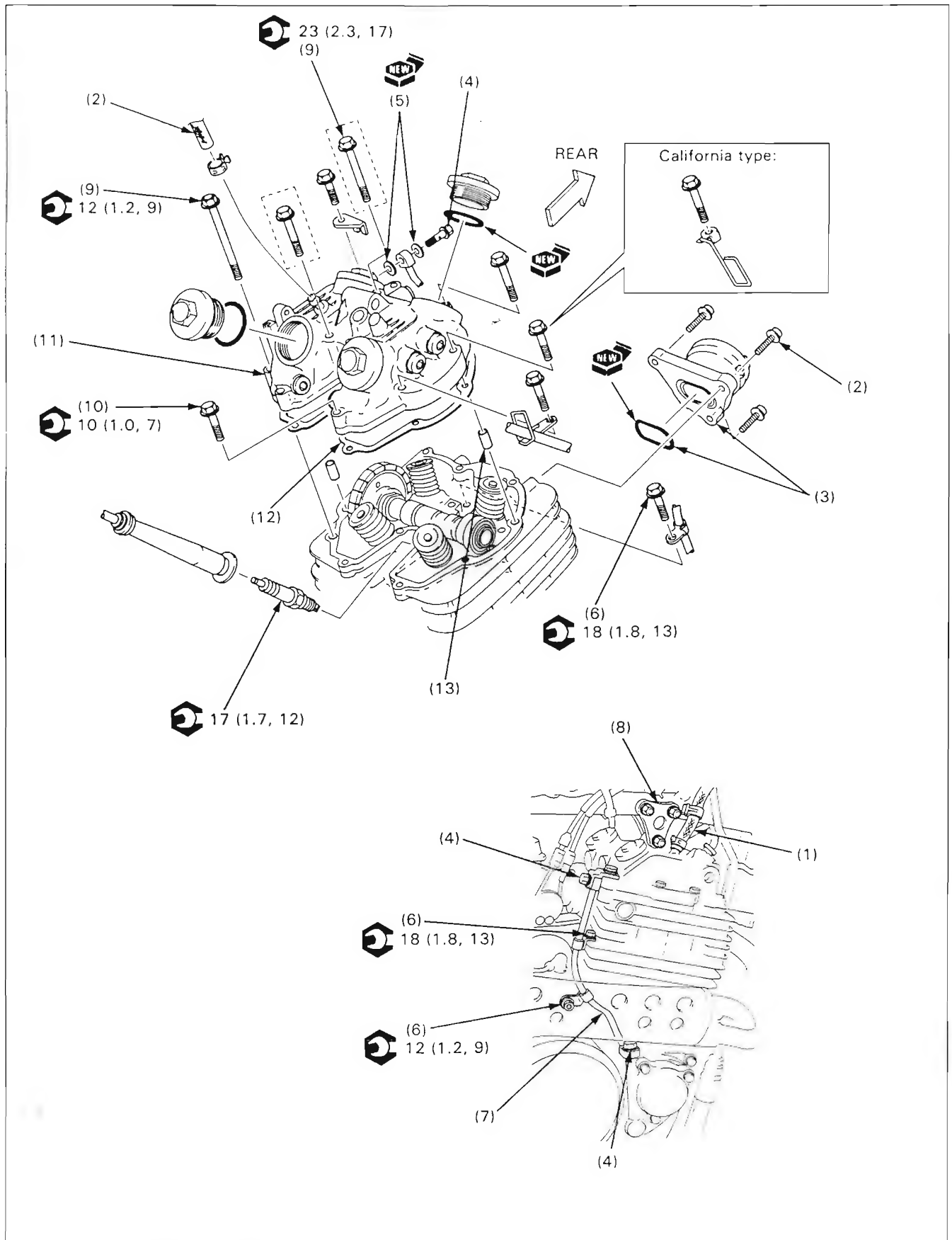
Excessive Smoke

- Cylinder head
 - Worn valve stem or valve guide
 - Damaged stem seal

Excessive Noise

- Cylinder head
 - Incorrect valve adjustment
 - Sticking valve or broken valve spring
 - Damaged or worn camshaft
 - Loose or worn cam chain
 - Worn or damaged cam chain
 - Worn or damaged cam chain tensioner
 - Worn cam sprocket teeth
 - Worn rocker arm and/or shaft

Cylinder Head Cover Removal/Installation



NOTE

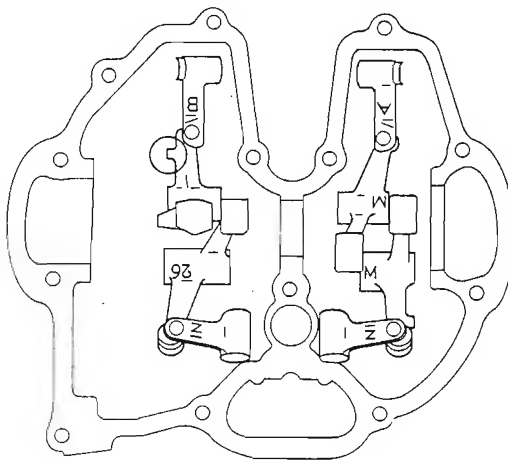
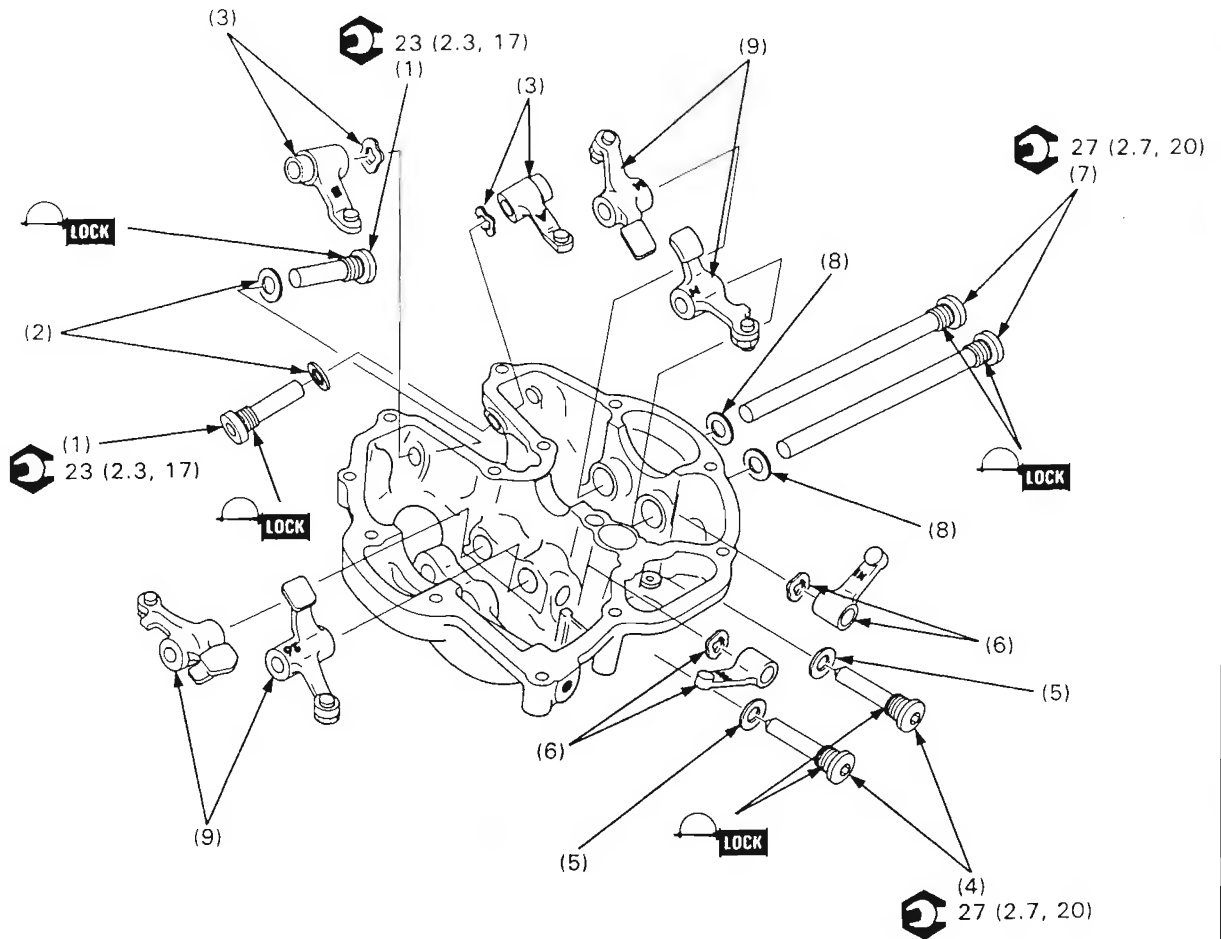
- Before removal, turn the crankshaft and align the "T" mark on the flywheel with the index notch on the crankcase cover when on the compression stroke (page 3-5).

Requisite Service


- Carburetor removal/installation (page 5-4)


Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Breather tube	1	
(2)	Insulator bolt	3	
(3)	Carburetor insulator/O-ring	1/1	
(4)	Oil bolt	2	
(5)	Sealing washer	4	
(6)	Pipe stay bolt	2	
(7)	Oil pass pipe	1	
(8)	Upper engine hanger plate	2	Installation (page 6-5)
(9)	Cylinder head cover bolt (10 mm head)	2	Loosen the two bolts indicated by dotted line enclosure.
(10)	(8 mm head)	11	
(11)	Cylinder head cover assembly	1	Slide the cylinder head cover to the intakeside and remove it. Disassembly/assembly (page 8-4)
(12)	Gasket	1	
(13)	Dowel pin	2	

Cylinder Head Cover Disassembly/Assembly



Rocker arm, Sub-rocker arm;

 : Slipper surface

 : Shaft hole inner surface

NOTE

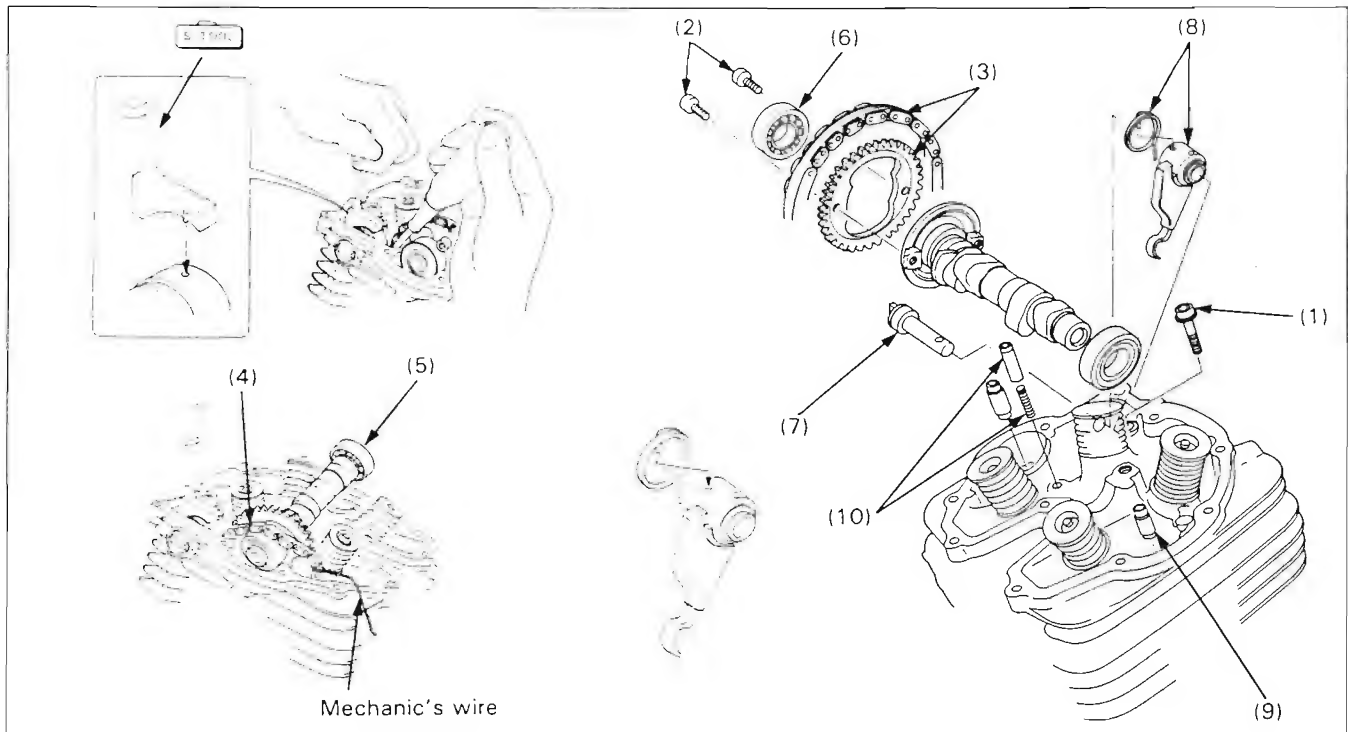
- Each rocker arm is stamped with its letter code in the location as shown. Install properly.
- Note the locations of the wave washers.

Requisite Service

- Cylinder head cover removal/installation (page 8-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Exhaust sub-rocker arm shaft	2	
(2)	Copper washer	2	
(3)	Exhaust sub-rocker arm/wave washer	2/2	
(4)	Intake sub-rocker arm shaft	2	
(5)	Copper washer	2	
(6)	Intake sub-rocker arm/wave washer	2/2	
(7)	Rocker arm shaft	2	
(8)	Copper washer	2	
(9)	Rocker arm	4	

Camshaft Removal



Requisite Service

- Cylinder head removal (page 8-2)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Tensioner shaft bolt	1	
(2)	Cam sprocket bolt	2	Push down the tensioner's lever using the screw driver and insert the pin of the tensioner holder (07973—MG30003) into the hole of the tensioner as shown. Slowly release the tensioner until tool resets against the cylinder head casting.
(3)	Cam sprocket/cam chain	1	Remove them from the cam shaft flange.
(4)	Cam chain	1	Derail the cam chain from the sprocket and attach a piece of mechanic's wire to the chain to prevent it from being dropped into the crankcase.
(5)	Camshaft assembly	1	Remove with cam sprocket. Installation (page 8-7)
(6)	Camshaft bearing	2	
(7)	Cam chain tensioner shaft	1	Push down the tensioner's lever and remove the cam chain tensioner holder.
(8)	Cam chain tensioner/return spring	1/1	
(9)	Bearing setting pin	2	
(10)	Stopper/spring	1/1	

Camshaft Installation

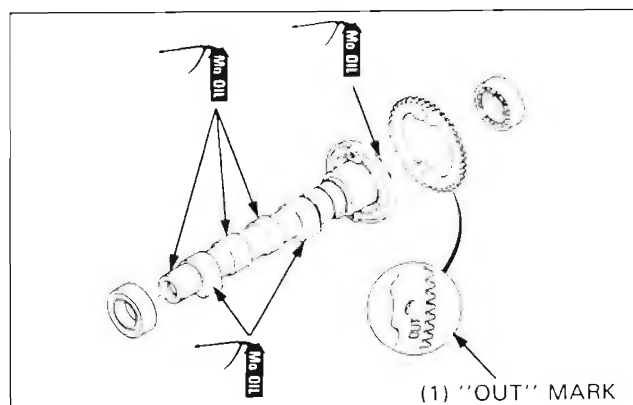
Release the cam chain tensioner (page 8-6).

5 1000

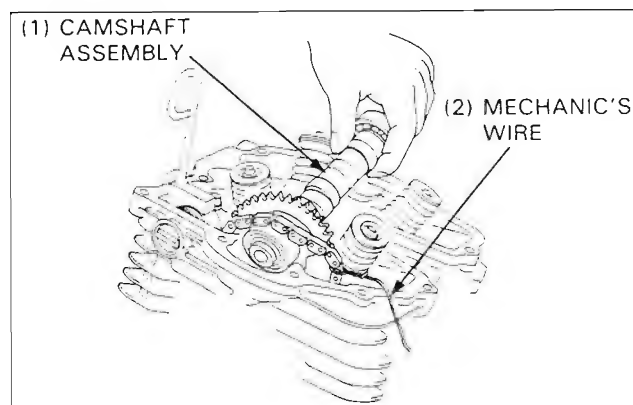
Cam chain tensioner holder 07973-MG30003

Install the bearings onto the camshaft ends with their sealed ends facing out.

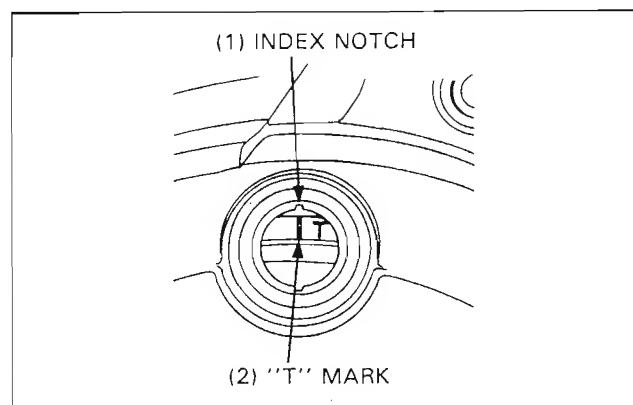
Install the cam sprocket to the camshaft flange with the "OUT" mark facing out.



Install the camshaft assembly through the cam chain and remove the mechanic's wire from the cam chain.



Remove the crankshaft hole cap and timing hole cap. Turn the crankshaft counterclockwise and align the "T" mark on the flywheel with the index notch on the left crankcase cover.

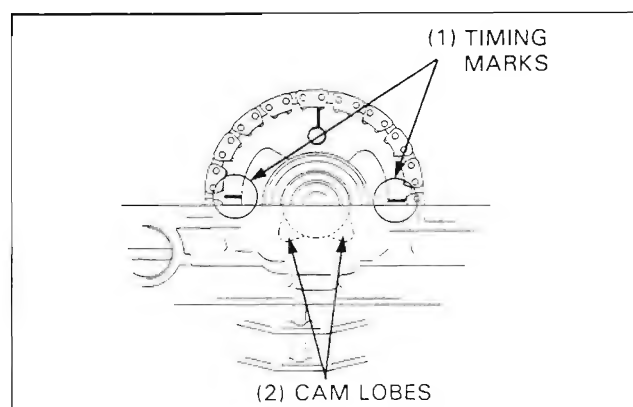


Place the camshaft into its correct position with the cam lobes all facing down.

Install the chain onto the cam sprocket so that the timing marks on the sprocket align with the upper surface of the cylinder head. Install the cam sprocket onto the camshaft flange.

NOTE

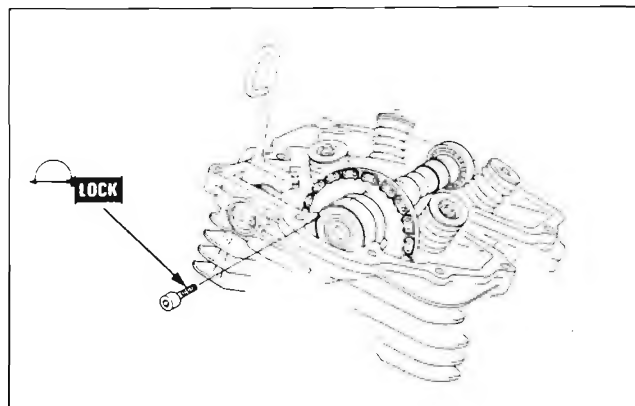
- Do not turn the sprocket when installing it onto the camshaft flange.



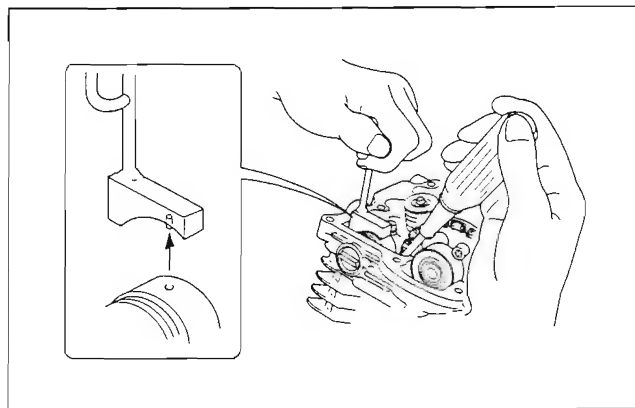
Cylinder Head/Valves

Align the cam sprocket bolt hole with camshaft hole. Install and tighten the one bolt loosely, then turn the crankshaft and install the second bolt. Torque both bolts.

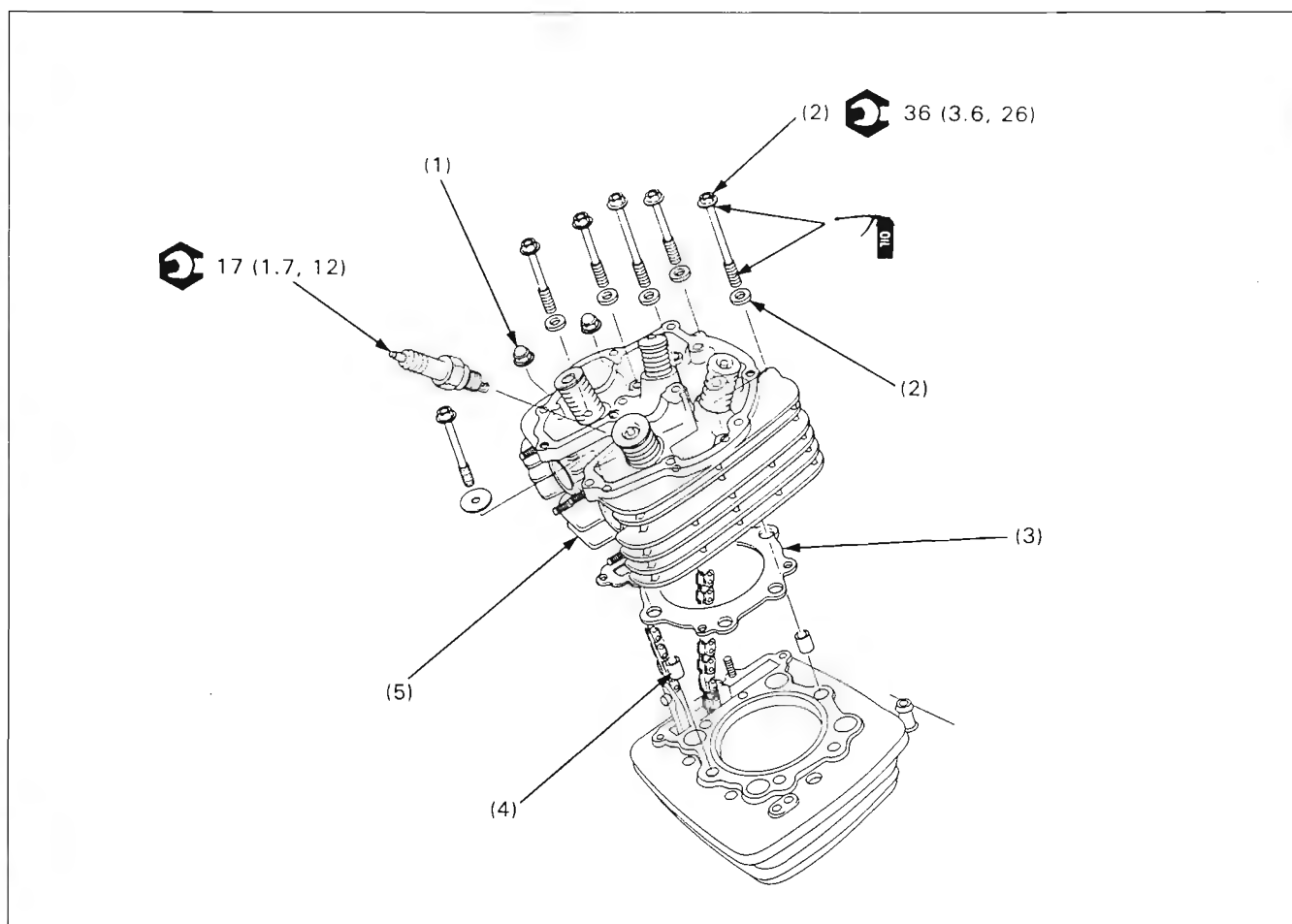
Torque: 20 N·m (2.0 kg-m, 14 ft-lb)



Push down the tensioner's lever using the screw driver and remove the tensioner holder.



Cylinder Head Removal/Installation



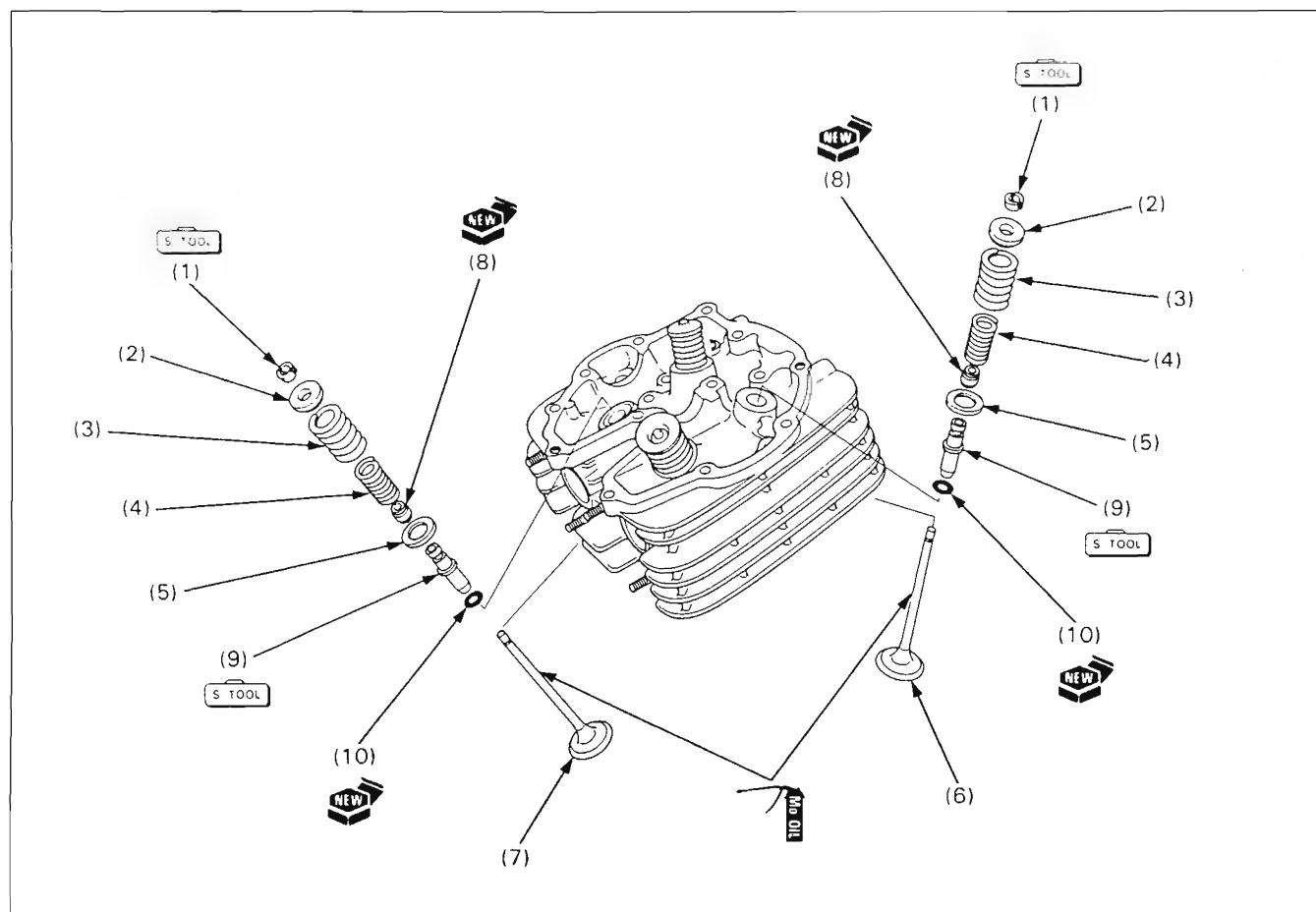
Requisite Service

• Camshaft removal (page 8-6)

• Camshaft installation (page 8-7)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Cylinder head nut	2	
(2)	Cylinder head bolt/washer	6/6	Disassembly/assembly (page 8-10)
(3)	Gasket	1	
(4)	Dowel pin	2	
(5)	Cylinder head assembly	1	

Cylinder Head Disassembly/Assembly



NOTE

- Mark all parts during disassembly so they can be placed back their original positions.
- Remove carbon deposits from the combustion chamber and clean off the head gasket surface before assembly.
- For valve guide replacement, see section 9 of the Common Service Manual.

Requisite Service

- Cylinder Head Removal/Installation (page 8-9)

Procedure		Q'ty	Remarks
(1)	Disassembly Order Valve spring cotter	8	Assembly is in the reverse order of disassembly. • Use valve spring compressor (07757-0010000). • To prevent loss of tension, do not compress the valve spring more than necessary.
(2)	Valve spring retainer	4	
(3)	Outer spring	4	
(4)	Inner spring	4	
(5)	Outer spring seat	4	
(6)	Intake valve	2	At installation, install with the narrow pitch end facing down. • Use valve guide remover, 6.6 mm (07742-0010200).
(7)	Exhaust valve	2	
(8)	Valve stem seal	4	
(9)	Valve guide	4	
(10)	O-ring	4	

9. Cylinder/Piston

Service Information	9-1	Cylinder, Piston Removal/Installation	9-2
Troubleshooting	9-1		

Service Information

- This section covers service of the cylinder and piston. This service can be done with the engine in the frame.
- Take care not to damage the cylinder walls and piston.
- Do not damage the piston sliding surfaces.
- When removing the piston, clean carbon and sludge from the top of the cylinder.
- When disassembling, mark and store each disassembled part to ensure that they are reinstalled in their proper locations.

Troubleshooting

Compression Too Low, Hard Starting

- Leaking cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damage cylinder and piston

Compression Too High Overheating or Knocking

- Excessive carbon built-up in cylinder or on top of piston

Piston Knocking

- Worn cylinder, piston or piston rings
- Worn piston pin and piston pin hole
- Worn connecting rod small end

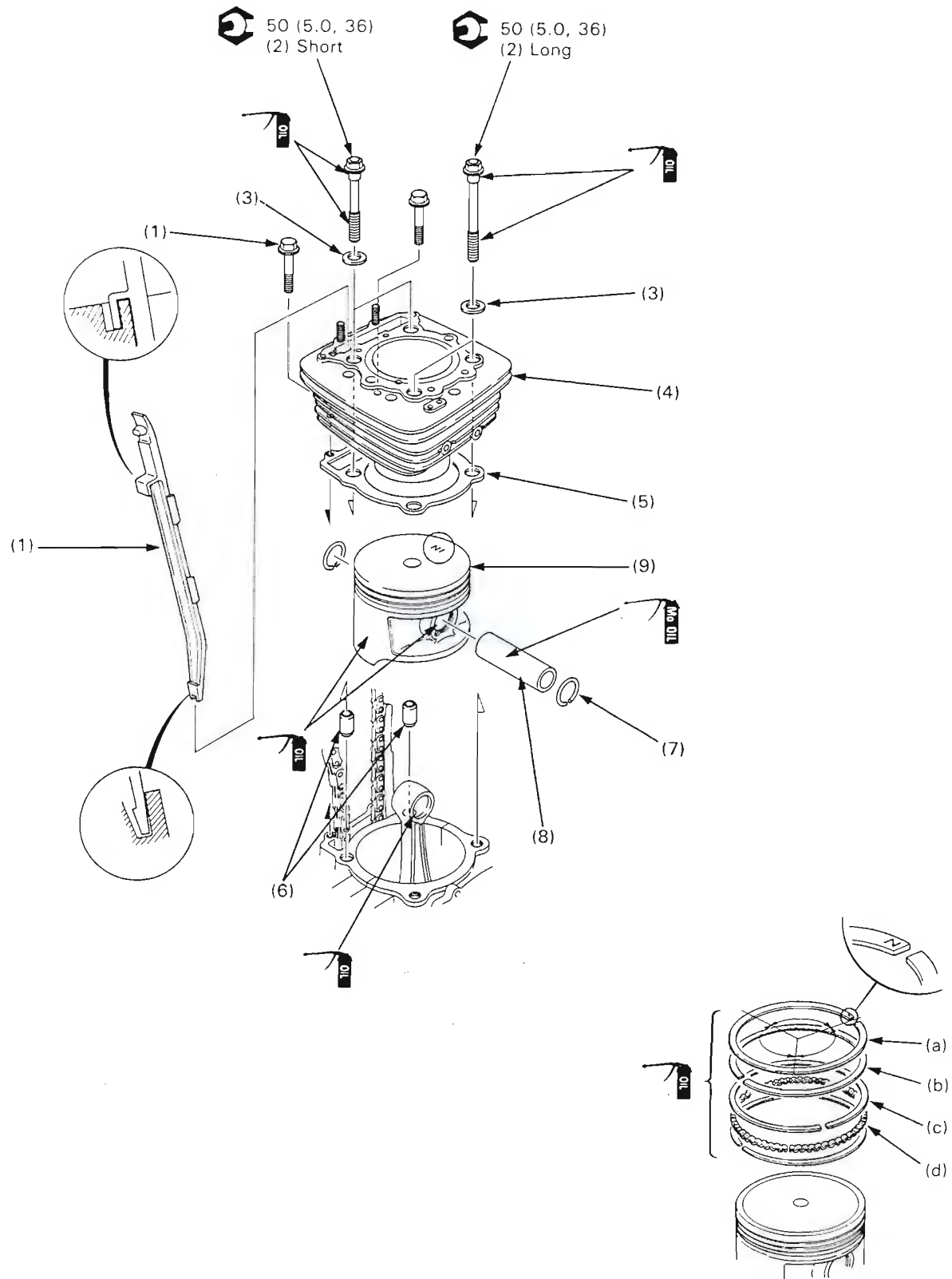
Excessive Smoke

- Worn cylinder, piston, or piston rings
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall

Excessive Noise

- Worn cylinder and piston
- Worn piston pin and piston pin hole

Cylinder, Piston Removal/Installation



NOTE

- Do not damage the gasket surface.
- Place a shop towel over the crankcase opening to prevent piston pin clips from falling into the crankcase.

Requisite Service

- Cylinder head removal/installation (page 8-9)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Chain guide	1	Installation is in the reverse order of removal. At installation, align the guide end and hook with the groove of the crankcase and cylinder.
(2)	Cylinder bolt (8 mm head)	2	
	(12 mm head)	4	
(3)	Washer	4	
(4)	Cylinder head	1	
(5)	Gasket	1	
(6)	Dowel pin	2	
(7)	Piston pin clip	2	
(8)	Piston pin	1	
(9)	Piston assembly	1	Install with the "IN" mark facing towards the intake side.
Piston Ring Removal Order			
(a)	Top ring	1	Install with the marking facing up.
(b)	Second ring	1	
(c)	Side rail	2	
(d)	Spacer	1	

MEMO

10. Crankshaft/Transmission

Service Information	10-1	Countershaft Disassembly/Assembly	10-8
Troubleshooting	10-1	Mainshaft Disassembly/Assembly	10-10
Crankcase Separation/Assembly	10-2	Crankshaft, Balancer Removal/	
Transmission Removal/Installation	10-4	Installation	10-12

Service Information

- This section covers crankcase separation in order to service the gearshift linkage, balancer, crankshaft and transmission.
- The gearshift cam plate can be serviced with the engine install in the frame (Section 7).
- The following parts must be removed before separating the crankcase.
 - Flywheel, starter clutch and starter motor (Section 14)
 - Clutch and primary drive gear (Section 7)
 - Oil pump (Section 4)
 - Cylinder head (Section 8)
 - Cylinder, piston (Section 9)
 - Engine (Section 6)

Troubleshooting

Excessive Noise

- Worn connecting rod big-end bearing
- Bent connecting rod
- Worn crankshaft main bearing
- Worn transmission bearing

Hard to Shift

- Improper clutch operation
- Incorrect engine oil viscosity
- Incorrect clutch adjustment
- Bent shift fork-
- Bent fork shaft
- Bent fork claw
- Damaged shift drum cam grooves
- Bent shift spindle

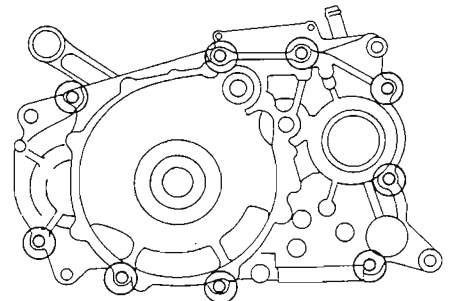
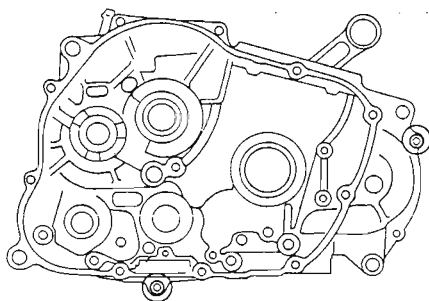
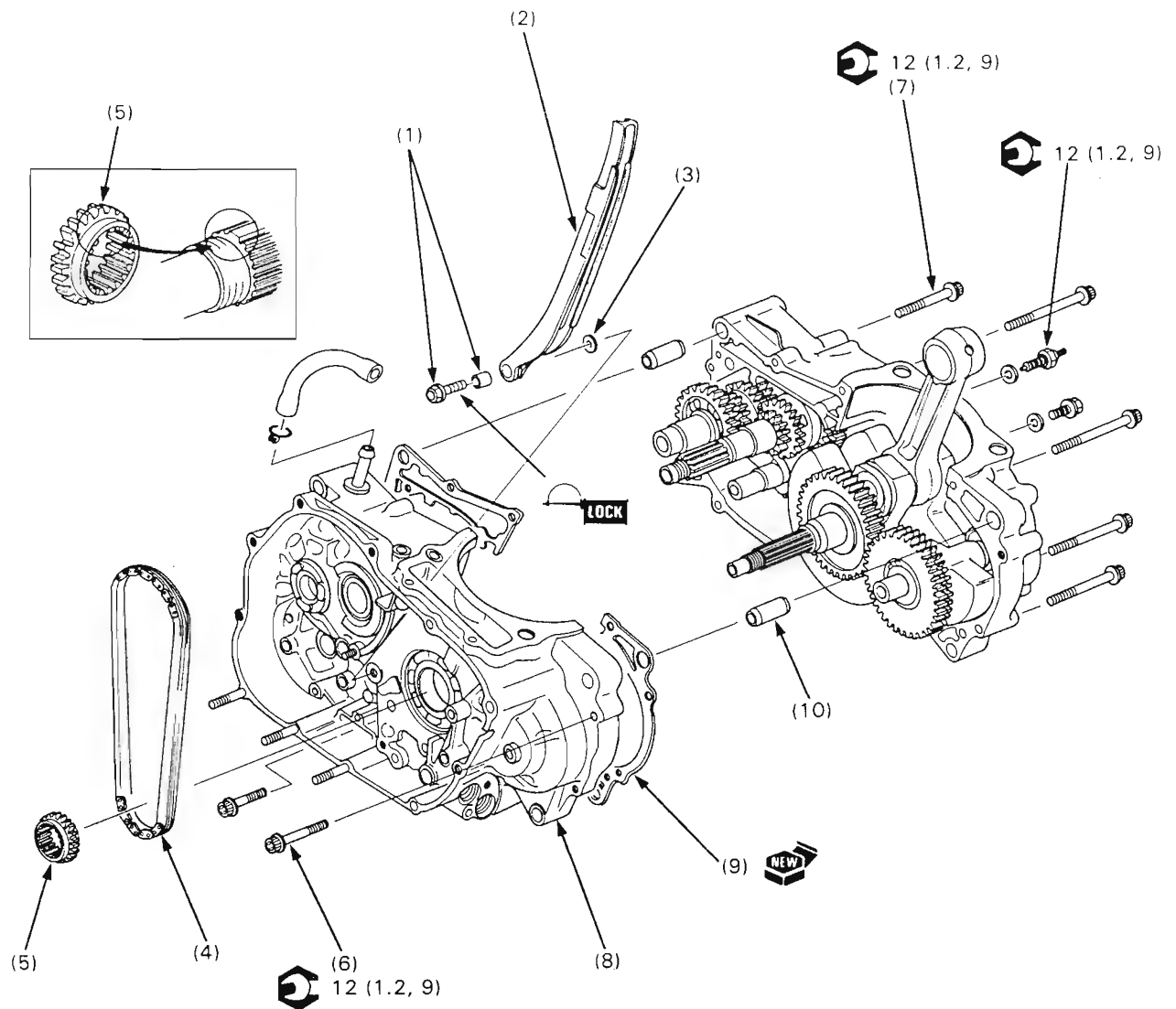
Transmission Jumps Out of Gear

- Worn gear dogs or slots
- Bent fork shaft
- Broken shift drum stopper
- Worn or bent shift forks
- Broken shift linkage return spring

Engine Vibration

- Excessive crankshaft runout
- Loose engine mount bolts

Crankcase Separation/Assembly



NOTE

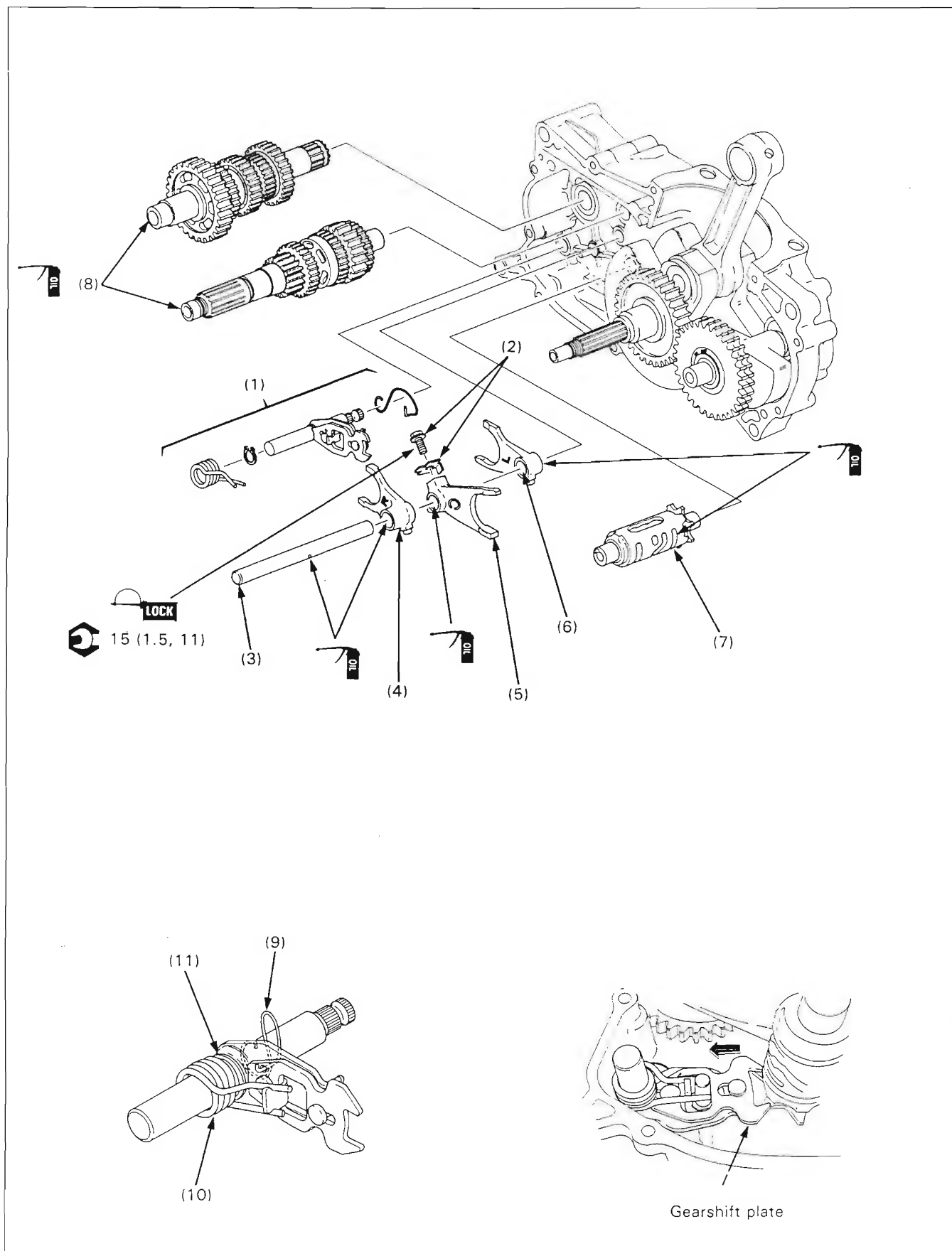
- Refer to Service Information (page 10-1) for removal of necessary parts before separation of the crankcase.

Requisite Service

- Engine oil draining/refilling

Procedure		Q'ty	Remarks
Separation Order			
(1)	Tensioner bolt/collar	1/1	Assembly is in the reverse order of separation.
(2)	Cam chain tensioner	1	
(3)	Washer	1	
(4)	Cam chain	1	
(5)	Cam chain drive sprocket	1	
			Derail the chain from the drive sprocket.
			At installation, align the wide groove with the wide tooth of the crankshaft.
(6)	Right crankcase bolt	2	Place the left crankcase side down.
(7)	Left crankcase bolt	8	
(8)	Right crankcase	1	
(9)	Gasket	1	
(10)	Dowl pin	2	
			• Transmission removal/installation (page 10-4)
			• Crankshaft, balancer removal/installation (page 10-12)

Transmission Removal/Installation



NOTE

- Turn the mainshaft and countershaft after reassembly to ensure that the gears turn smoothly.
- After installation, turn the shaft while lubricating the gears with clean, recommended oil.

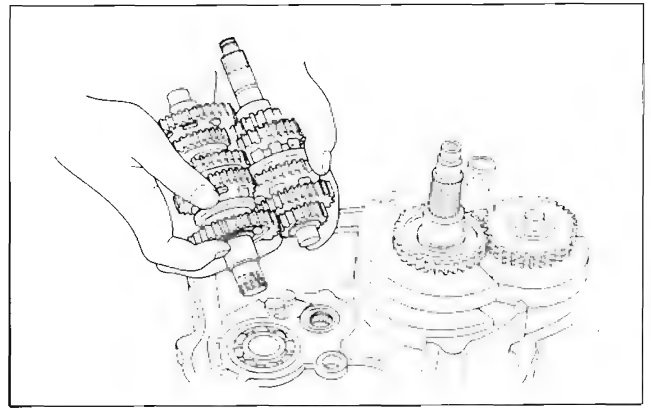
Requisite Service

- Crankcase separation/assembly (page 10-2)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Gearshift spindle assembly	1	Installation is in the reverse order of removal. Push the gearshift plate in the direction the arrow shows and, remove it.
(2)	Shift fork bolt/lock washer	1/1	Bend down the tabs of the lock washer.
(3)	Shift fork shaft	1	Installation (page 10-6)
(4)	Right shift fork	1	
(5)	Center shift fork	1	
(6)	Left shift fork	1	
(7)	Shift drum	1	
(8)	Mainshaft/counter shaft assembly	1/1	<ul style="list-style-type: none"> • Remove the mainshaft and countershaft as an assembly • Disassembly/assembly (page 10-8 and 10-10)
(9)	Reset spring	1	
(10)	Return spring	1	
(11)	Snap ring	1	

Shift Fork Installation

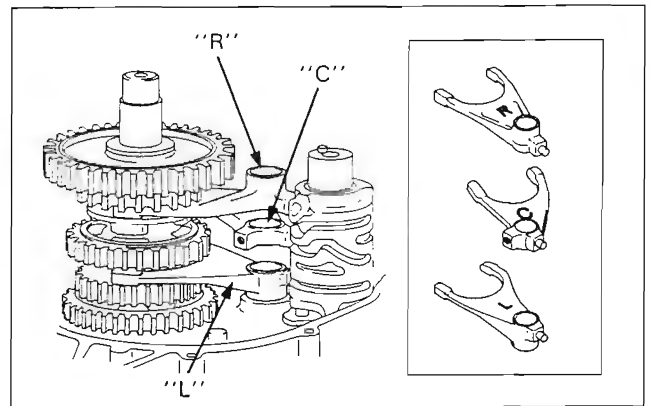
Install the mainshaft and countershaft assembly into the left crankcase.



Each shift forks has an identification mark; "R" (right), "C" (center), "L" (left).

Install the shift forks to the correct position onto shifter gear with its mark facing up (right crankcase side).

Align the shift fork pins with the shift drum slots and install them.

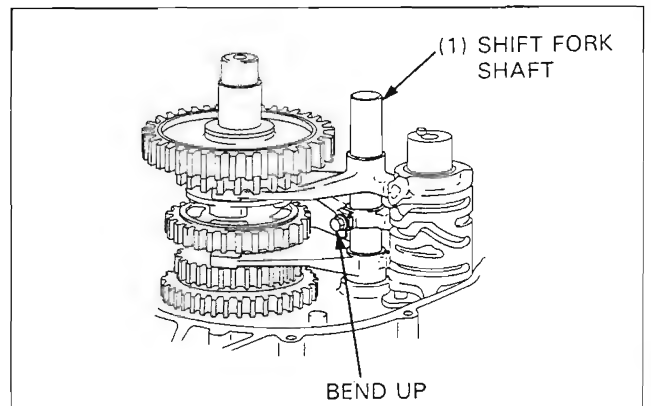


Install the shift fork shaft into the shift forks, and align the bolt holes in the center shift fork and shaft.

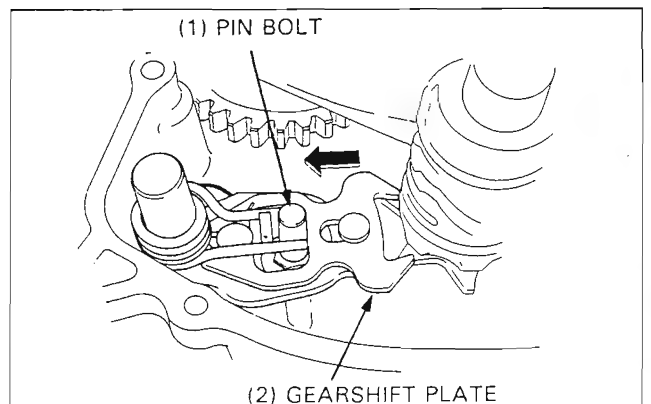
Install and tighten the center shift fork bolt using a new lock washer.

Torque: 15 N·m (1.5 kg-m, 11 ft-lb)

Bend the tabs of the lock washer up against the shift fork bolt.

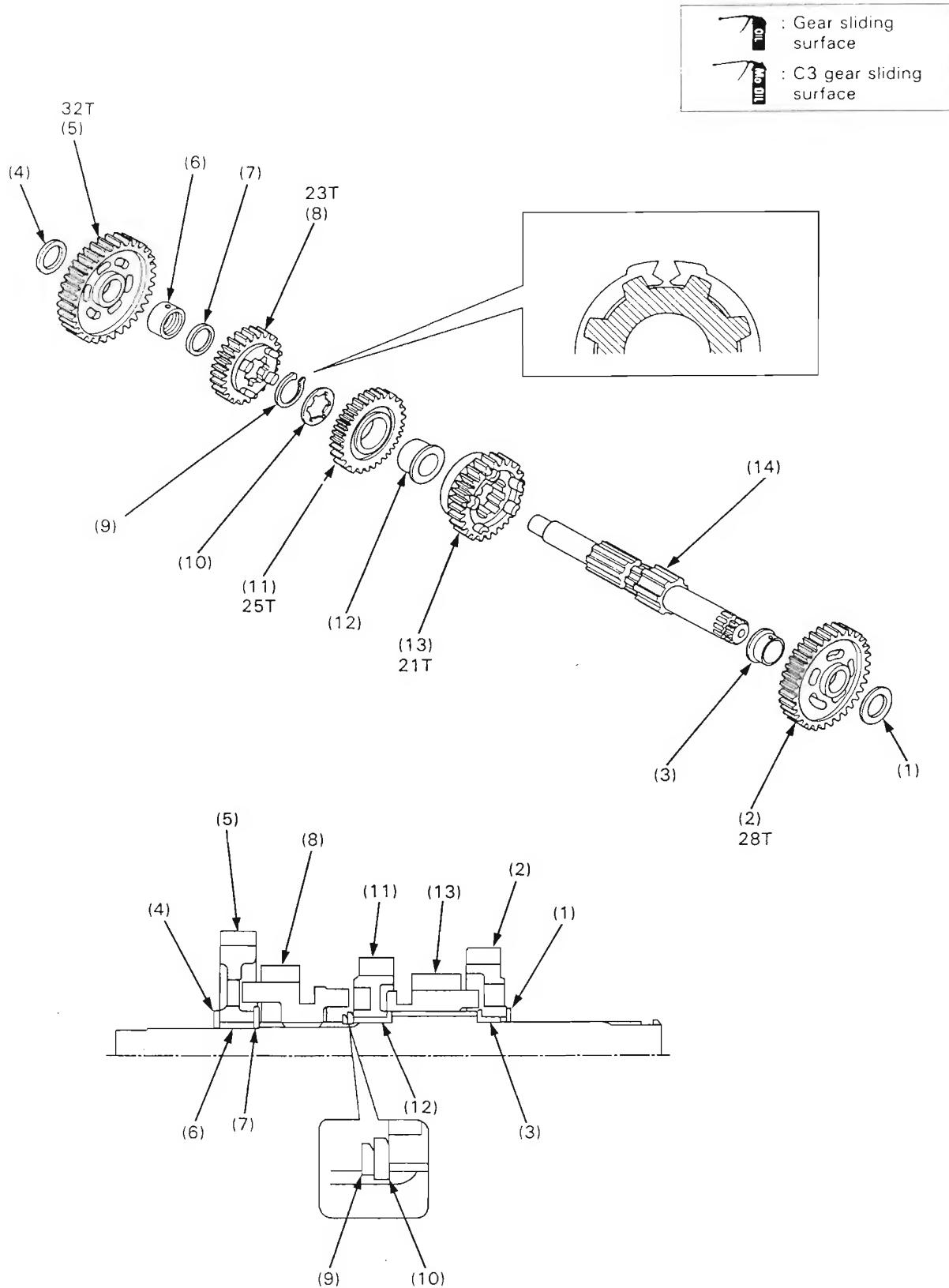


Align the return spring with the pin bolt and install the gear spindle assembly while pushing the gearshift plate in the direction the arrow shows.



MEMO

Countershaft Disassembly/Assembly



NOTE

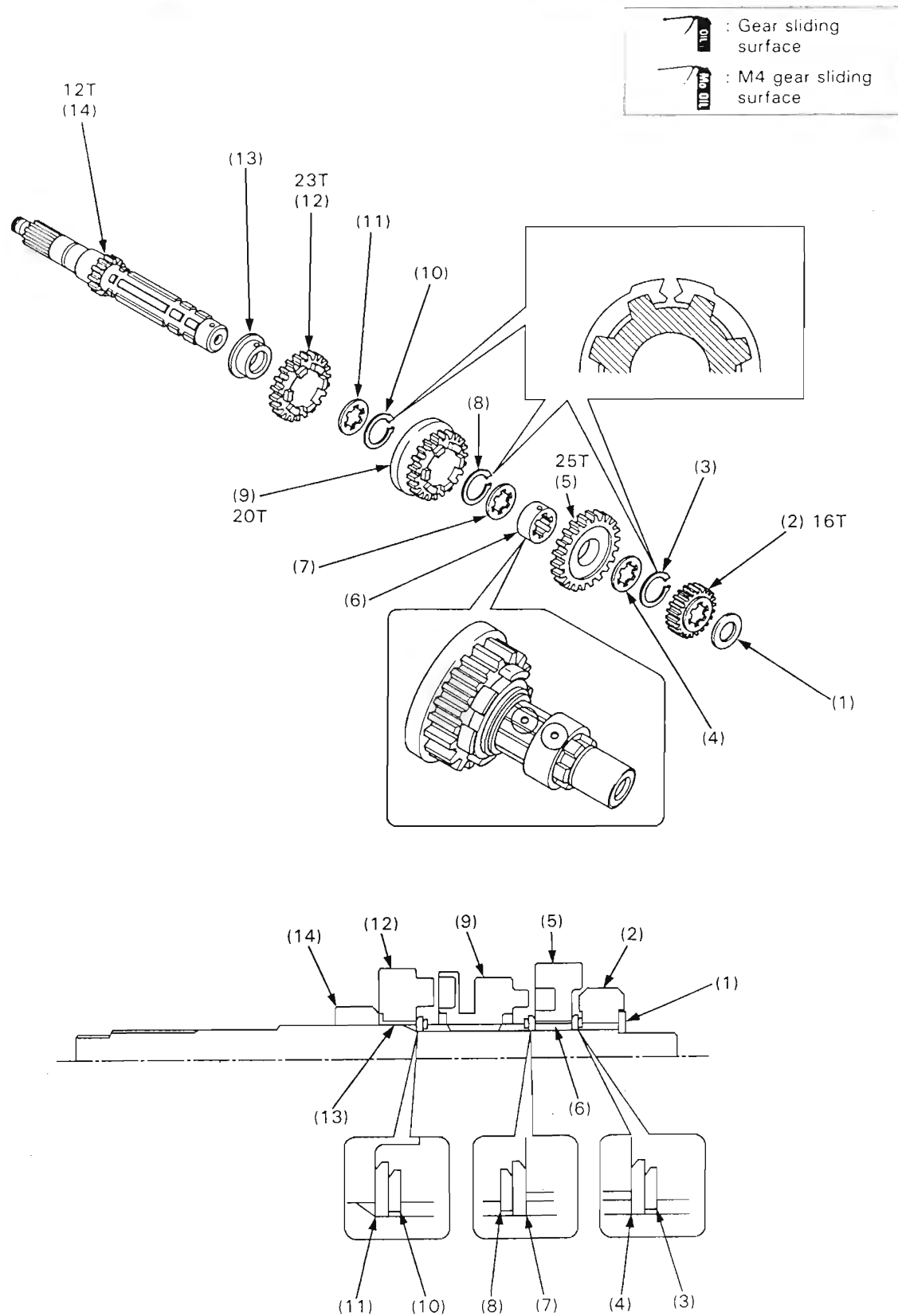
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
- After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
- Do not use worn snap rings which could easily spin in the groove. They may be too loose to properly seat in the groove. Align the gap in the snap ring with the groove in the spline.

Requisite Service

- Transmission removal/installation (page 10-4)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Washer	1	
(2)	C2 gear (28T)	1	
(3)	C2 gear bushing	1	
(4)	Washer	1	
(5)	C1 gear (32T)	1	
(6)	C1 gear bushing	1	
(7)	Washer	1	
(8)	C4 gear (23T)	1	
(9)	Snap ring	1	
(10)	Spline washer	1	
(11)	C3 gear (25T)	1	
(12)	C3 gear bushing	1	
(13)	C5 gear (21T)	1	
(14)	Countershaft	1	

Mainshaft Disassembly/Assembly



NOTE

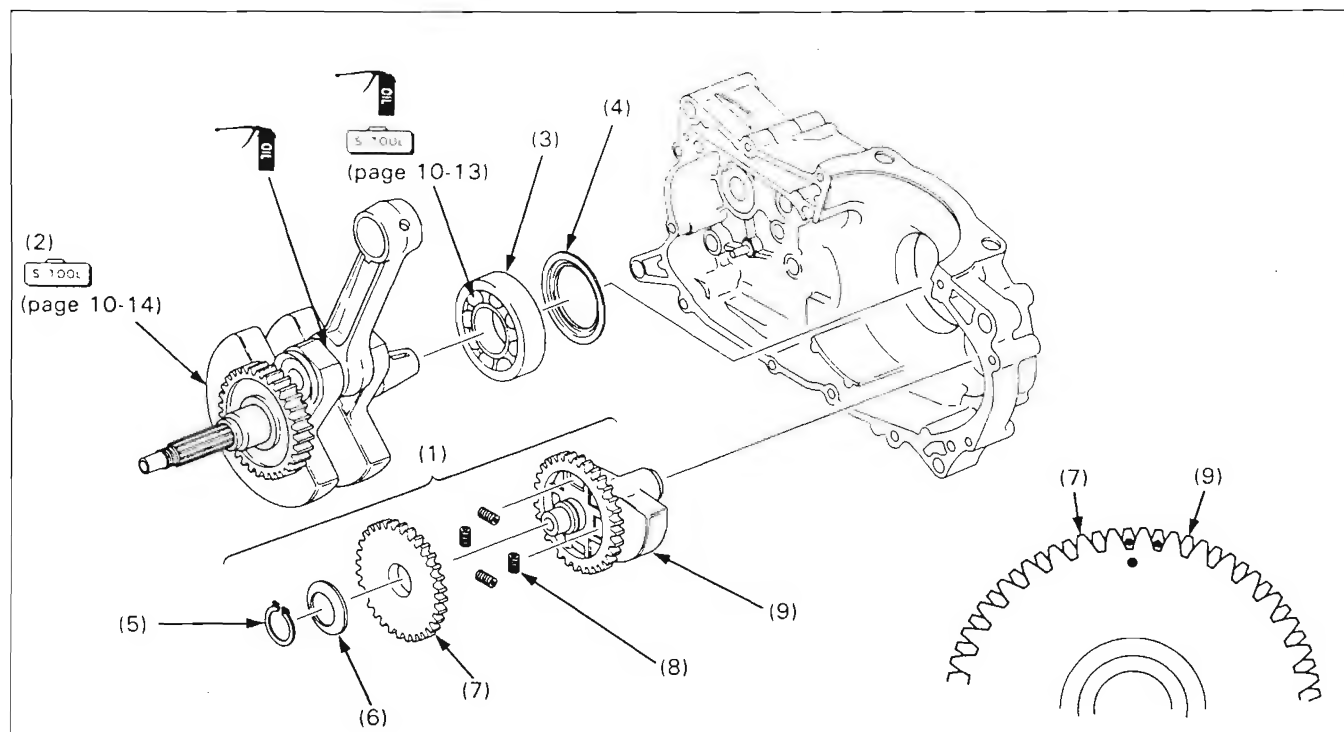
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
- After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
- Do not use worn snap rings which could easily spin in the groove. They may be too loose to properly seat in the groove. Align the gap in the snap ring with the groove in the spline.

Requisite Service

- Transmission removal/installation (page 10-4)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Washer	1	
(2)	M2 gear (16T)	1	
(3)	Snap ring	1	
(4)	Spline washer	1	
(5)	M5 gear (25T)	1	
(6)	M5 gear bushing	1	At installation, align the oil hole with shaft oil hole.
(7)	Spline washer	1	
(8)	Snap ring	1	
(9)	M3 gear (20T)	1	
(10)	Snap ring	1	
(11)	Spline washer	1	
(12)	M4 gear (23T)	1	
(13)	M4 gear bushing	1	
(14)	Mainshaft/M1 gear (12T)	1	

Crankshaft, Balancer Removal/Installation



NOTE

- Refer to section 1 of the Common Service Manual for bearing inspection.

Requisite Service

- Transmission removal/installation (page 10-4)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal. Removal/installation (page 10-13)
(1)	Balancer assembly	1	
(2)	Crankshaft assembly	1	
(3)	Crankshaft bearing	1	
(4)	Bearing plate	1	
Balancer Disassembly Order			Assembly is in the reverse order of removal.
(5)	Snap ring	1	
(6)	Cone spring washer	1	At installation, align the punch mark with left side punch mark on the inner driven gear as shown. Remove from the inner driven gear.
(7)	Outer driven gear	1	
(8)	Spring	4	
(9)	Inner driven gear	1	

Balancer Removal/Installation

Removal

Insert a proper sized nail into the holes in the balancer, while prying the scissors gears (balancer driven gear) with the screw driver.

Turn the balancer driven gear with the balancer weight out of the crank weight, and paint on the balancer drive gear and driven gear.

Remove the balancer and pull out the nail.

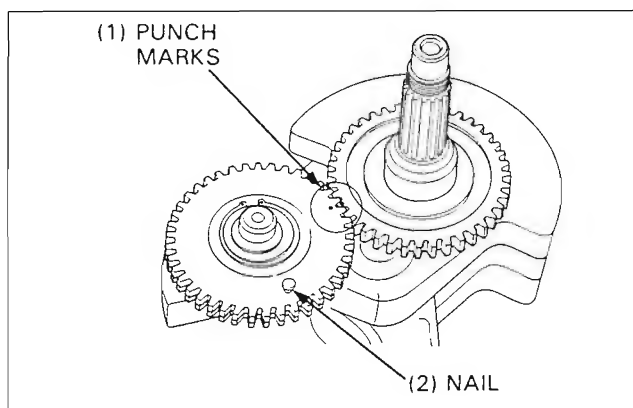
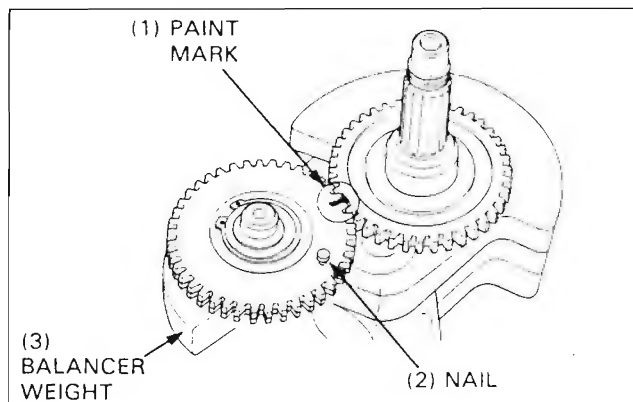
Installation

Insert the proper sized nail into the hole in the balancer, while prying the scissors gears with a screw driver.

Install the balancer with the paint marks align.

Turn the balancer, and make sure the punch marks on the balancer drive gear and driven gear are aligned.

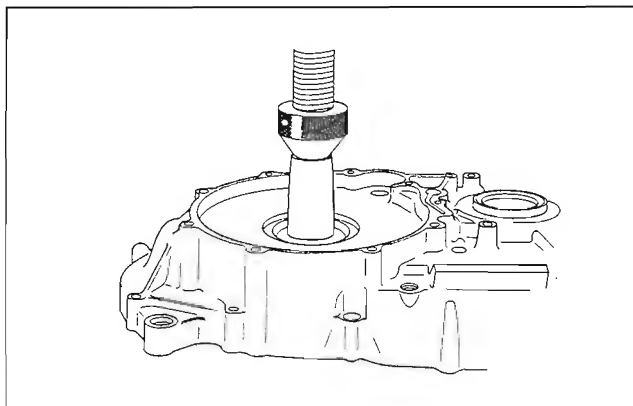
Pull out the nail out of the balancer.



Crankshaft Removal/Installation

Removal

Using the hydraulic press, press the crankshaft out of the left crankcase.



Remove the left crankshaft bearing with a bearing puller if it comes out with the crankshaft.

S. TOOL

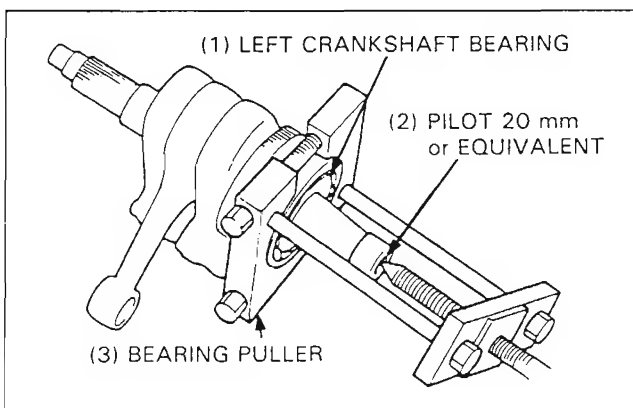
Universal bearing puller
Bearing puller claw

07631-0010000
07931-MK20100

Discard the bearing.

NOTE

- Always replace the left bearing with a new one if it comes with the crankshaft.



Crankshaft/Transmission

Installation

Apply oil to a new left crankshaft bearing, and drive each bearing into the left crankcase.



Driver	07749-0010000
Attachment, 78 x 90 mm	07GAD-SD40101
Pilot, 40 mm	07746-0040900

Clean the crankcase mating surface before assembling and check for wear or damage.

NOTE

- If there is minor roughness or irregularities on the crankcase mating surfaces, dress them with an oil stone.
- After cleaning, lubricate the crankshaft bearings and other contacting surfaces with clean engine oil.

Install the threaded adaptor into the thread end of the crankshaft.

Position the crankshaft into the left crankcase.

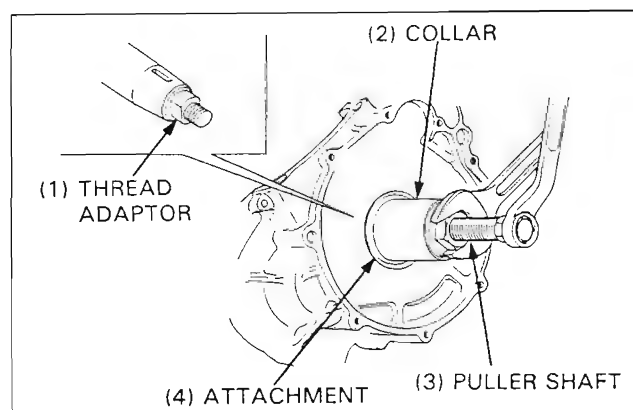
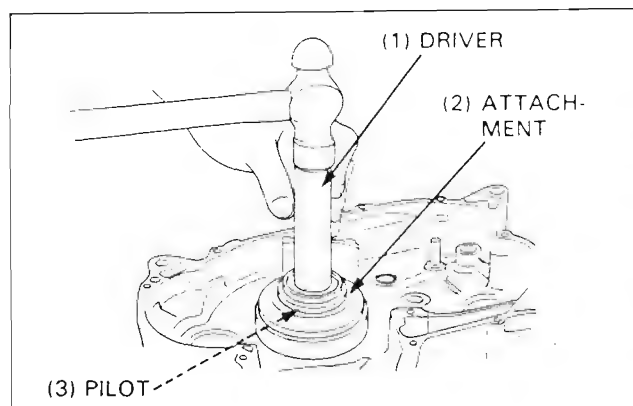
Draw the crankshaft into the left crankcase with the following tools.

NOTE

- Draw the crankshaft, making sure the connecting rod is not compressed against the crankcase edge.



Crankcase assembly tool	07931-KF00000
— Puller shaft	07931-ME40000
— Assembly collar	07931-KF00100
— Thread adaptor	07931-KF00200
Attachment I.D., 35 mm	07746-0030400



11. Front Wheel/Suspension/Steering

Service Information	11-1	Fork Removal/Installation	11-8
Troubleshooting	11-1	Fork Disassembly	11-10
Handlebar Removal/Installation	11-2	Fork Assembly	11-12
Front Wheel Removal/Installation	11-4	Steering Stem Removal/Installation	11-14
Front Wheel Disassembly/Assembly	11-6		

Service Information

▲ WARNING

- Riding on damaged rims impairs safe operation of the vehicle.

- When servicing the front wheel, support the motorcycle securely with a jack or other support under the engine.
- Refer to the section 13 for brake system information.
- Refer to the section 17 for light, meter and switch information.

Troubleshooting

Hard Steering

- Steering head bearing adjustment nut too tight
- Damaged steering head bearings
- Damaged inner or outer bearing races
- Damaged steering stem
- Worn tire
- Low tire pressure

Steers to One Side or Does not Track Straight

- Faulty steering head bearings
- Unevenly adjusted right and left fork legs
- Bent front axle: wheel installed incorrectly
- Bent frame
- Worn tire
- Worn wheel bearings

Front Wheel Wobbling

- Bent rim
- Faulty wheel bearing
- Faulty tire
- Loose wheel spokes

Soft Suspension

- Faulty spring
- Insufficient tire pressure
- Low fluid level in fork
- Contaminated fluid in fork
- Wrong type of fluid in fork

Hard Suspension

- Bent fork tubes
- Fork fluid level too high
- Incorrect fluid weight
- High tire pressure
- Clogged fluid passage

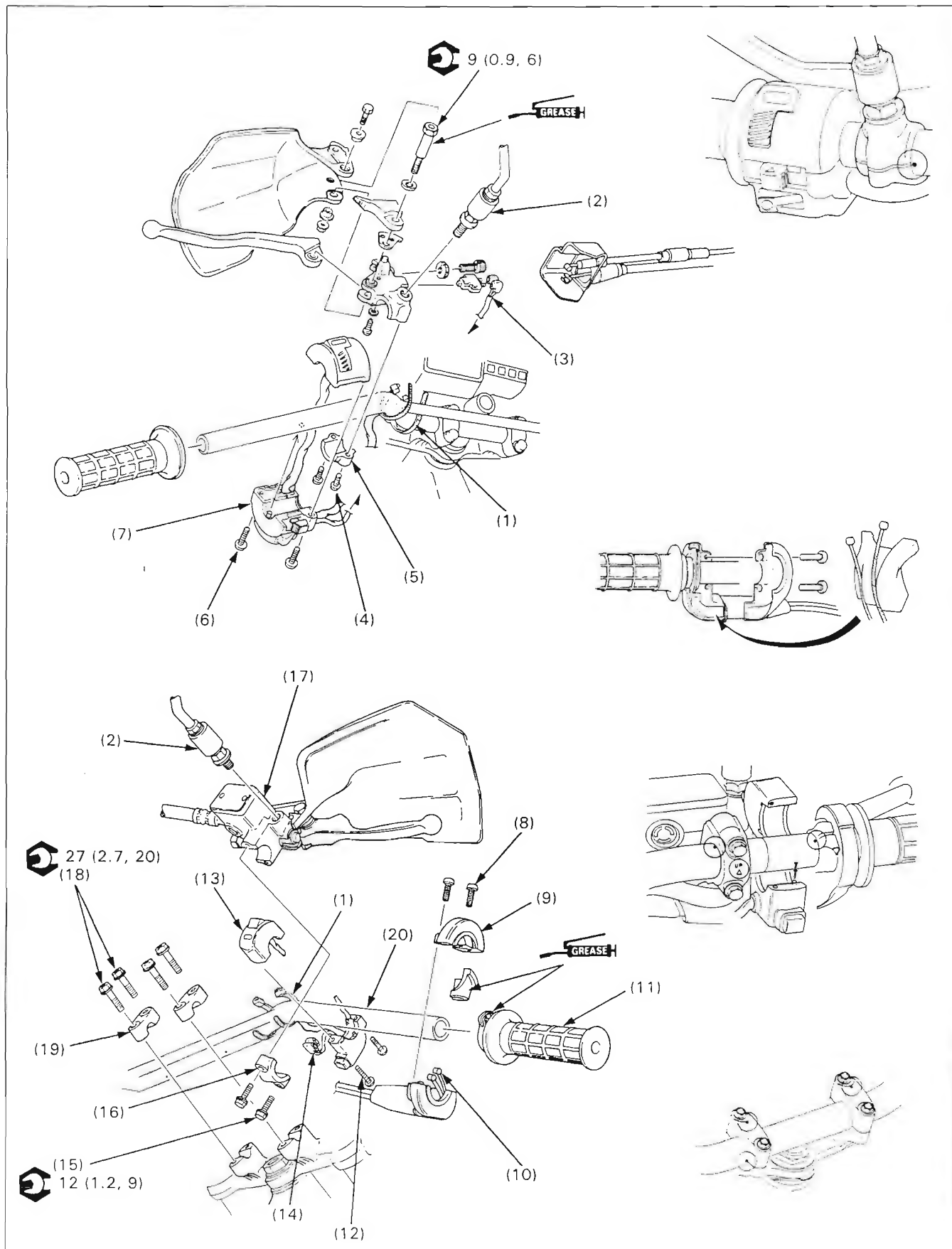
Front Suspension Noisy

- Bent fork tubes
- Loose fork fasteners
- Insufficient fluid in fork
- Lack of grease in speedometer gearbox

Wheel Turns Hard

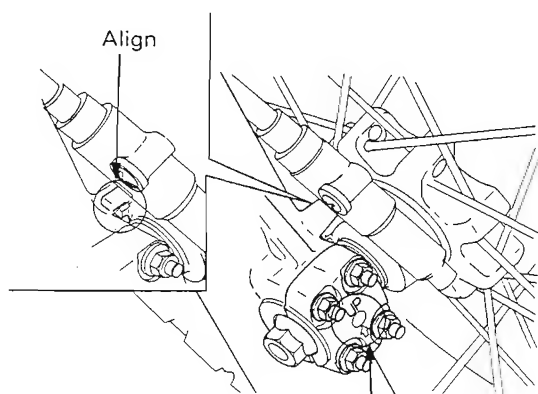
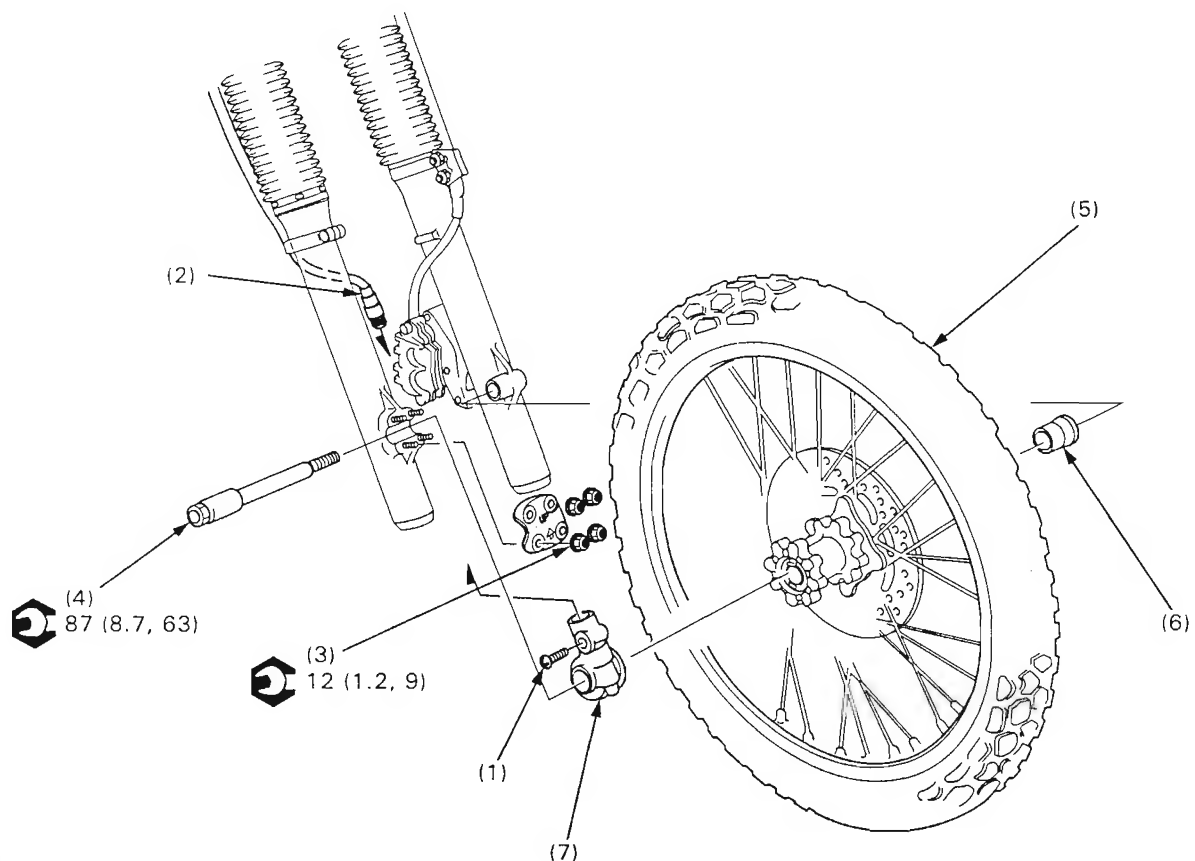
- Faulty wheel bearings
- Faulty speedometer gearbox

Handlebar Removal/Installation



Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Wire band	4	
(2)	Rear view mirror	2	
(3)	Clutch switch wire	2	
(4)	Clutch lever bracket screw	2	
(5)	Clutch lever holder	1	
(6)	Left handlebar switch screw	2	
(7)	Left handlebar switch	1	
(8)	Throttle housing screw	2	
(9)	Throttle housing	1	
(10)	Throttle cable	2	<ul style="list-style-type: none"> • Disconnect from the throttle grip flange. • At installation, route the cable guide plate properly as shown.
(11)	Throttle grip	1	
(12)	Engine stop switch screw	2	
(13)	Engine stop switch	1	
(14)	Brake light switch wire	2	
(15)	Master cylinder holder bolt	2	
(16)	Brake master cylinder holder	1	
(17)	Brake master cylinder assembly	1	CAUTION <ul style="list-style-type: none"> • Keep master cylinder upright, to prevent air from entering the system.
(18)	Handlebar upper holder bolt	4	
(19)	Handlebar upper holder	2	
(20)	Handlebar	1	

Front Wheel Removal/Installation



With up mark facing up.

▲WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.
- Never use an air hose or dry brush to clean brake assembly. Use an OSHA-approved vacuum cleaner or an alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

NOTE

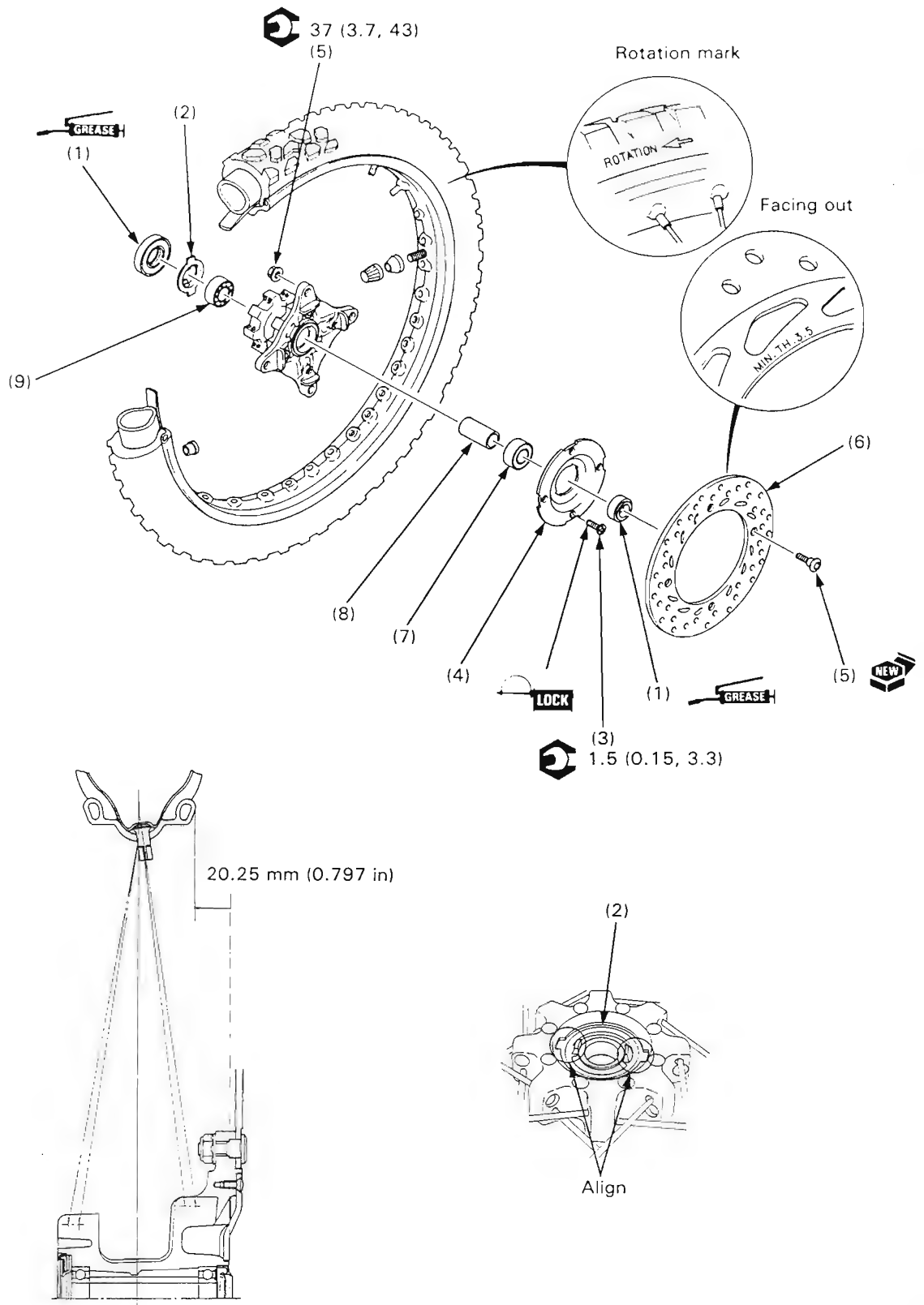
- Do not depress the brake lever when the caliper is removed, or it will be difficult to refit the disc between the brake pads.

Requisite Service

- Raise the front wheel off the ground by placing a jack or other support under the engine.

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Speedometer cable setting screw	1	
(2)	Speedometer cable	1	
(3)	Axle holder nut	4	Only loosen.
(4)	Axle	1	
(5)	Front wheel assembly	1	Disassembly (page 11-6)
(6)	Axle side collar	1	
(7)	Speedometer gear box assembly	1	

Front Wheel Disassembly/Assembly



▲ WARNING

- A contaminated brake disc reduces stopping power. Clean a contaminated disc with high quality brake degreasing agent.

NOTE

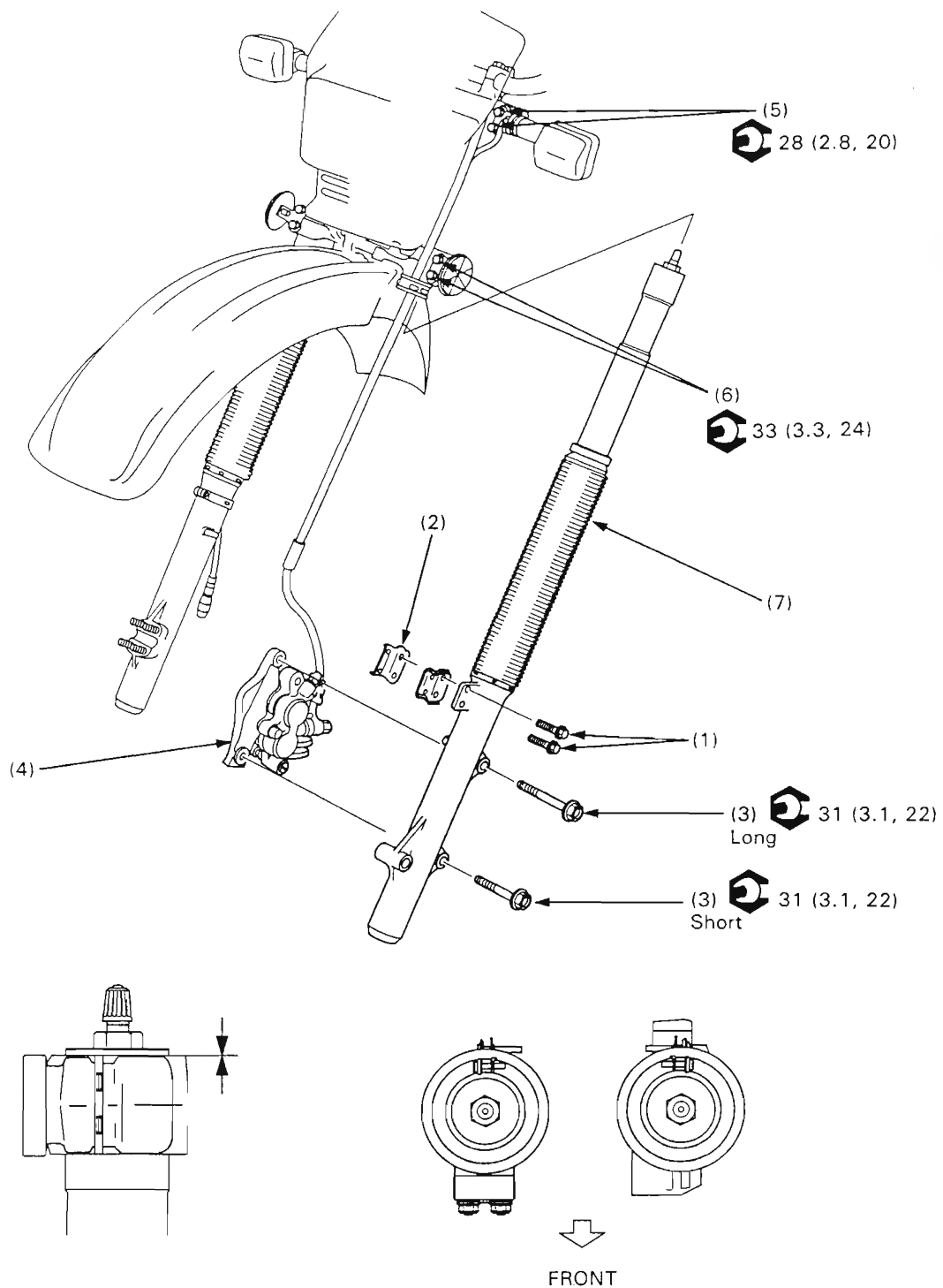
- Always replace wheel bearings as a set.
- For wheel bearing replacement, refer to the section 1 of the Common Service Manual.

Requisite Service

- Front wheel removal/installation (page 11-4)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Dust seal	2	At installation, align the tabs with the slots in the wheel hub.
(2)	Speedometer gear retainer	1	
(3)	Hub cover screw	4	
(4)	Hub cover	1	At installation, install with the "MIN. TH. 3.5 mm" mark facing out.
(5)	Brake disc bolt/nut	4/4	
(6)	Brake disc	1	
(7)	Left wheel bearing (6003)	1	At installation, drive a new right bearing in the hub first, then drive in a new left bearing.
(8)	Distance collar	1	
(9)	Right wheel bearing (6003)	1	

Fork Removal/Installation



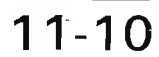
NOTE

- If the fork legs will be disassembled, loosen the upper pinch bolt first. Then loosen the fork cap, but do not remove it yet.
- After assembling the fork, tighten the fork cap before tightening the upper pinch bolts.

Requisite Service

- Front wheel removal/installation (page 11-4)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake hose clamp bolt	2	
(2)	Brake hose clamp	1	
(3)	Brake caliper bracket bolt	2	
(4)	Brake caliper	1	CAUTION • Do not hang the brake caliper from the brake hose.
(5)	Upper pinch bolt	2	Only loosen. NOTE • Be careful not to let the fork drop when loosening the bolt.
(6)	Lower pinch bolt	2	
(7)	Fork assembly	1	At installation, align the line of fork end with the upper surface of the top bridge.



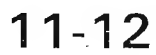
▲ WARNING

- The fork cap is under spring pressure. Use care when removing it and wear eye and face protection.

Requisite Service

- Fork removal (page 11-8)

Procedure		Q'ty	Remarks
Disassembly Order			
(1)	Boot band	2	
(2)	Fork boot	1	
(3)	Fork cap/O-ring	1/1	
(4)	Spring seat	1	
(5)	Fork spring	1	Drain the fork fluid after removing the spring.
(6)	Dust seal	1	
(7)	Stopper ring	1	CAUTION • Be careful not to damage the fork tube sliding surface.
(8)	Bottom bolt cover	1	
(9)	Bottom bolt/washer	1/1	Before removing the bottom bolt, turn the adjuster counterclockwise fully.
(10)	Fork piston cylinder assembly	1	
(11)	Fork tube	1	
(12)	Oil lock piece	1	
(13)	Oil seal	1	
(14)	Back up ring	1	
(15)	Slider bushing	1	
(16)	Fork tube bushing	1	NOTE • Do not remove bushing unless it is to be replaced. Use retainer wrench (07GMA—KS70100).
(17)	Bottom piece retainer	1	
(18)	Bottom piece/O-ring	1	
(19)	Fork damper lock nut	1	
(20)	Piston rod	1	CAUTION • Be careful not to damage the guide bushing inside the fork piston cylinder with the piston rod threads.

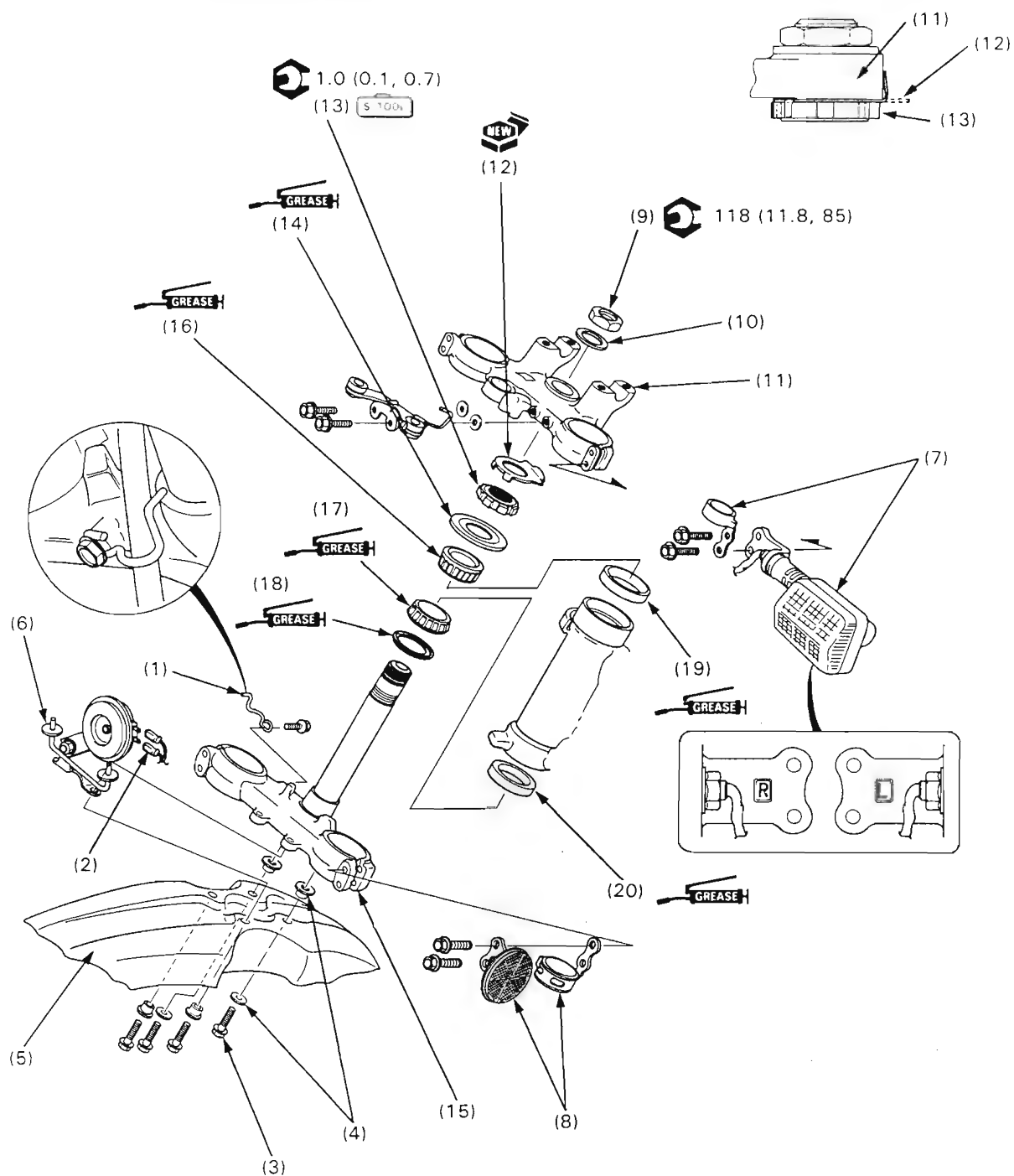


Requisite Service

- Fork installation (page 11-8)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Piston rod	1	Install into fork piston cylinder.
(2)	Fork damper lock nut	1	Install with threaded side facing up.
(3)	Bottom piece/O-ring	1/1	
(4)	Bottom piece retainer	1	<ul style="list-style-type: none"> • Use retainer wrench (07GMA—KS70100). • Check that the retainer edge is inside fork piston.
(5)	Fork tube bushing	1	Install onto fork tube.
(6)	Oil lock piece	1	
(7)	Fork piston cylinder assembly	1	Extend the piston rod fully and insert into the fork tube.
(8)	Fork tube	1	
(9)	Slider bushing	1	
(10)	Back up ring	1	
(11)	Oil seal	1	<p>NOTE</p> <ul style="list-style-type: none"> • Wrap vinyl tape around the fork tube top end to avoid damage the oil seal lip during installation. • Drive the oil seal into the slider using the seal driver attachment (07947—KF00100) and slider weight (07947—KA50101).
(12)	Stopper ring	1	<p>CAUTION</p> <ul style="list-style-type: none"> • Be careful not to damage the fork tube sliding surface.
(13)	Dust seal	1	
(14)	Bottom bolt/washer	1/1	Before installing, make sure the adjuster is turned counterclockwise fully. After installing, adjust fork spring preload.
(15)	Bottom bolt cover	1	Pour in the fork fluid to the specified level before installing the fork spring.
(16)	Fork spring	1	Wipe fluid off the spring thoroughly using a clean lint free cloth and install with the tightly wound coil end facing down.
(17)	Spring seat	1	
(18)	Fork cap/O-ring	1/1	<p>Install the fork cap onto the damper rod and tighten the lock nut, then screw it into the fork tube, but do not tighten yet.</p> <p>CAUTION</p> <ul style="list-style-type: none"> • Be careful not to cross-thread the fork cap.
(19)	Fork boot	1	Temporarily install the boot with the breather holes facing rearward.
(20)	Boot band	2	

Steering Stem Removal/Installation



NOTE

- The steering head bearings and races should always be replaced as a set.
- When loosening and tightening the steering stem nut, temporarily install the fork legs.

Requisite Service

- Headlight stay removal/installation (page 17-5)
- Handlebar removal/installation (page 11-2)
- Meter removal/installation (page 17-6)
- Fork removal/installation (page 11-8)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Speedometer clamp	1	
(2)	Horn wire connector	2	
(3)	Front fender mounting bolt	4	
(4)	Washer/collar	2/4	
(5)	Fender	1	
(6)	Horn mounting stay	1	
(7)	Turn signal light/brake hose holder	2/1	At installation, do not interchange the right and left turn signal light.
(8)	Reflector/brake hose holder	2/1	
(9)	Steering stem nut	1	
(10)	Washer	1	
(11)	Fork top bridge	1	At installation, bend the lock washer along the steering stem after installing the top bridge.
(12)	Lock washer	1	At installation, install with locking tab facing rearward.
(13)	Steering bearing adjustment nut	1	Use steering stem nut wrench (07916—KA50100) and extension bar (07716—0020500).
(14)	Dust seal	1	
(15)	Steering stem	1	
(16)	Upper bearing	1	
(17)	Lower bearing	1	Install using a hydraulic press and steering stem driver (07946—4300101).
(18)	Dust seal	1	
(19)	Upper bearing inner race	1	• Remove using the ball race remover (07953—MA00000).
(20)	Lower bearing inner race	1	• Install using the driver (07749—0010000) and attachment, 42 x 47 mm (07746—0010300).

12. Rear Wheel/Suspension

Service Information	12-1	Suspension Linkage Removal/Installation	12-12
Troubleshooting	12-1	Suspension Linkage Disassembly/Assembly	12-13
Rear Wheel Removal/Installation	12-2	Swingarm Removal/Installation	12-16
Rear Wheel Disassembly/Assembly	12-4	Swingarm Disassembly/Assembly	12-18
Shock Absorber Removal/Installation	12-6		
Shock Absorber Disassembly/Assembly	12-8		

Service Information

⚠ WARNING

- The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.
 - Release the nitrogen, before disposal of the shock absorber.
-
- When servicing the rear wheel, support the motorcycle securely with work stand or other support under the engine.
 - Refer to the section 13 for brake system information.
 - Use only genuine Honda bolts and nuts on all suspension, swingarm and shock absorber mounting locations.

Troubleshooting

Rear Wheel Wobbling

- Bent wheel or rim
- Worn rear wheel bearing(s)
- Faulty tire
- Loose fasteners in axle parts
- Incorrect tire pressure
- Loose wheel spokes
- Faulty swingarm pivot bearing(s)
- Worn tire
- Incorrect wheel balance

Soft Suspension

- Weak spring
- Incorrect preload adjuster adjustment
- Oil leakage from damper unit

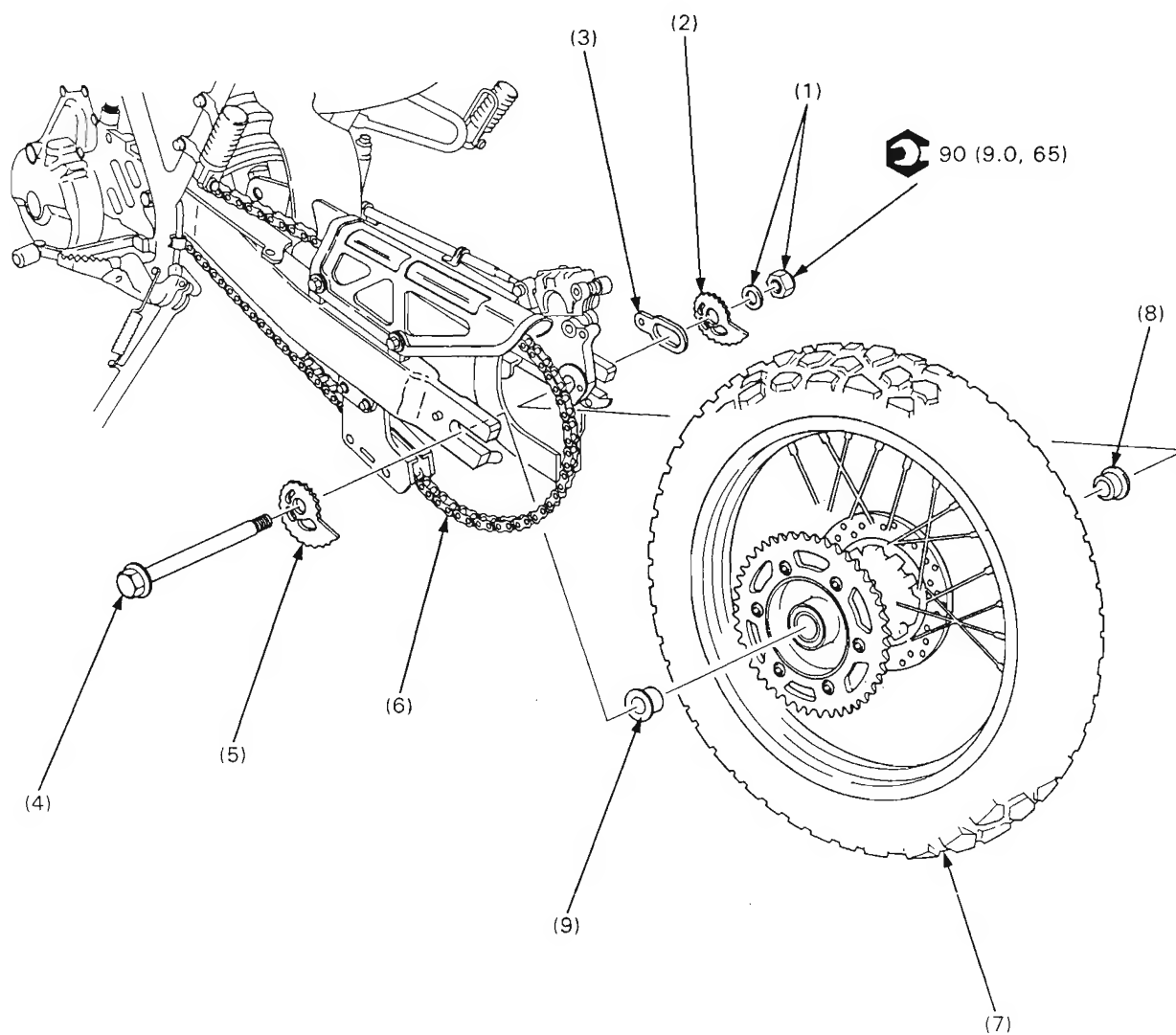
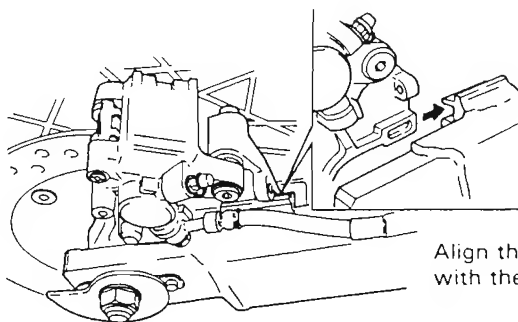
Hard Suspension

- Bent damper rod
- Damaged swingarm pivot bearing(s)
- Incorrect preload adjuster adjustment
- Faulty swingarm pivot
- Incorrectly mounted suspension components

Shock Absorber Noisy

- Bent fork tube
- Loose fasteners

Rear Wheel Removal/Installation



▲ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality degreasing agent.

NOTE

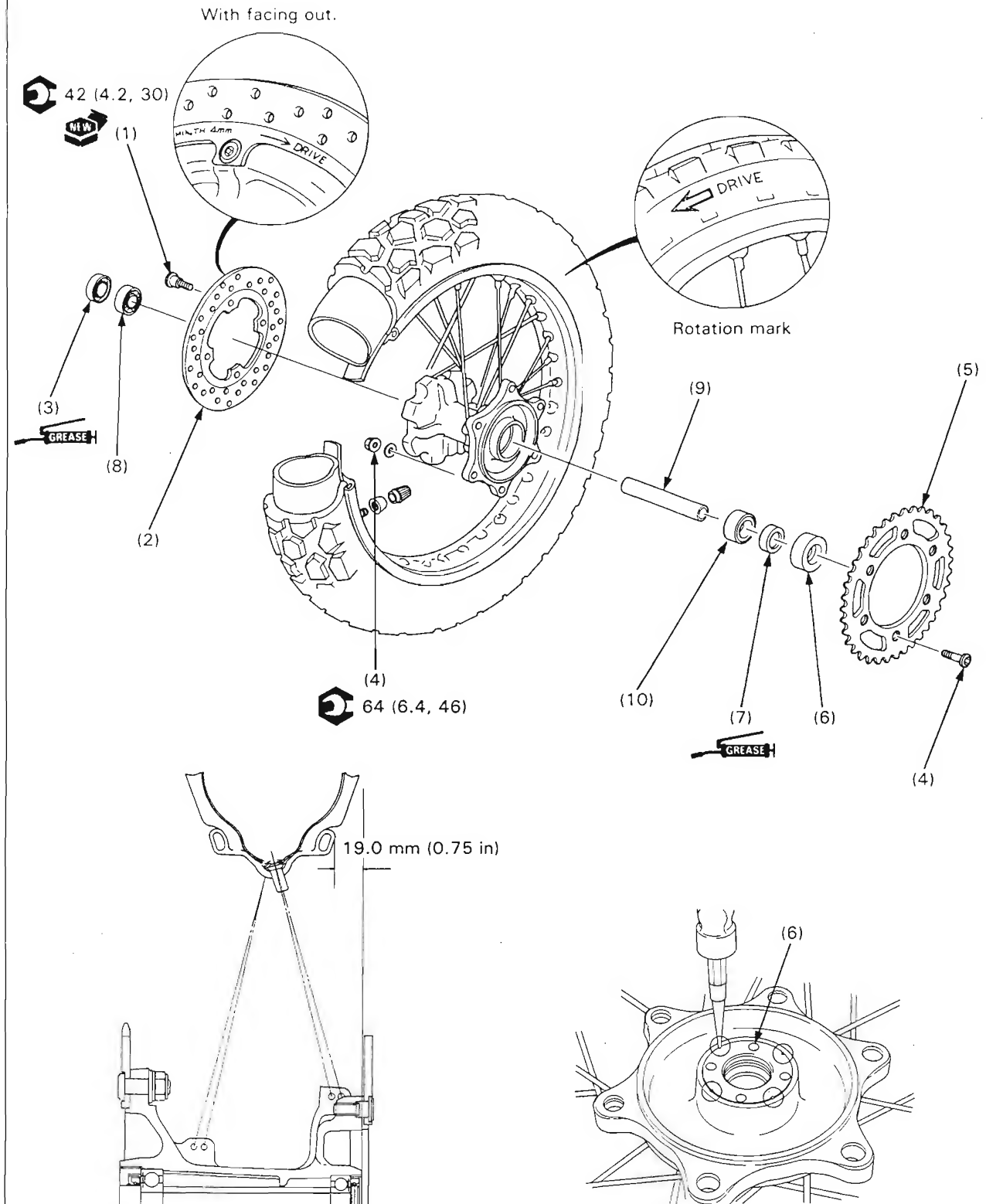
- Do not depress the brake pedal when the caliper is removed, or it will be difficult to refit the disc between the brake pads.

Requisite Service

- Raise the rear wheel off the ground and support the motorcycle.

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Rear axle nut/washer	1/1	
(2)	Chain adjuster, right	1	
(3)	Stopper plate	1	
(4)	Rear axle	1	
(5)	Chain adjuster, left	1	
(6)	Drive chain	1	Remove the chain from the sprocket.
(7)	Rear wheel assembly	1	Disassembly (page 12-4)
(8)	Right side collar	1	
(9)	Left side collar	1	

Rear Wheel Disassembly/Assembly



▲ WARNING

- A contaminated brake disc reduces stopping power. Clean a contaminated disc with a high quality degreasing agent.

NOTE

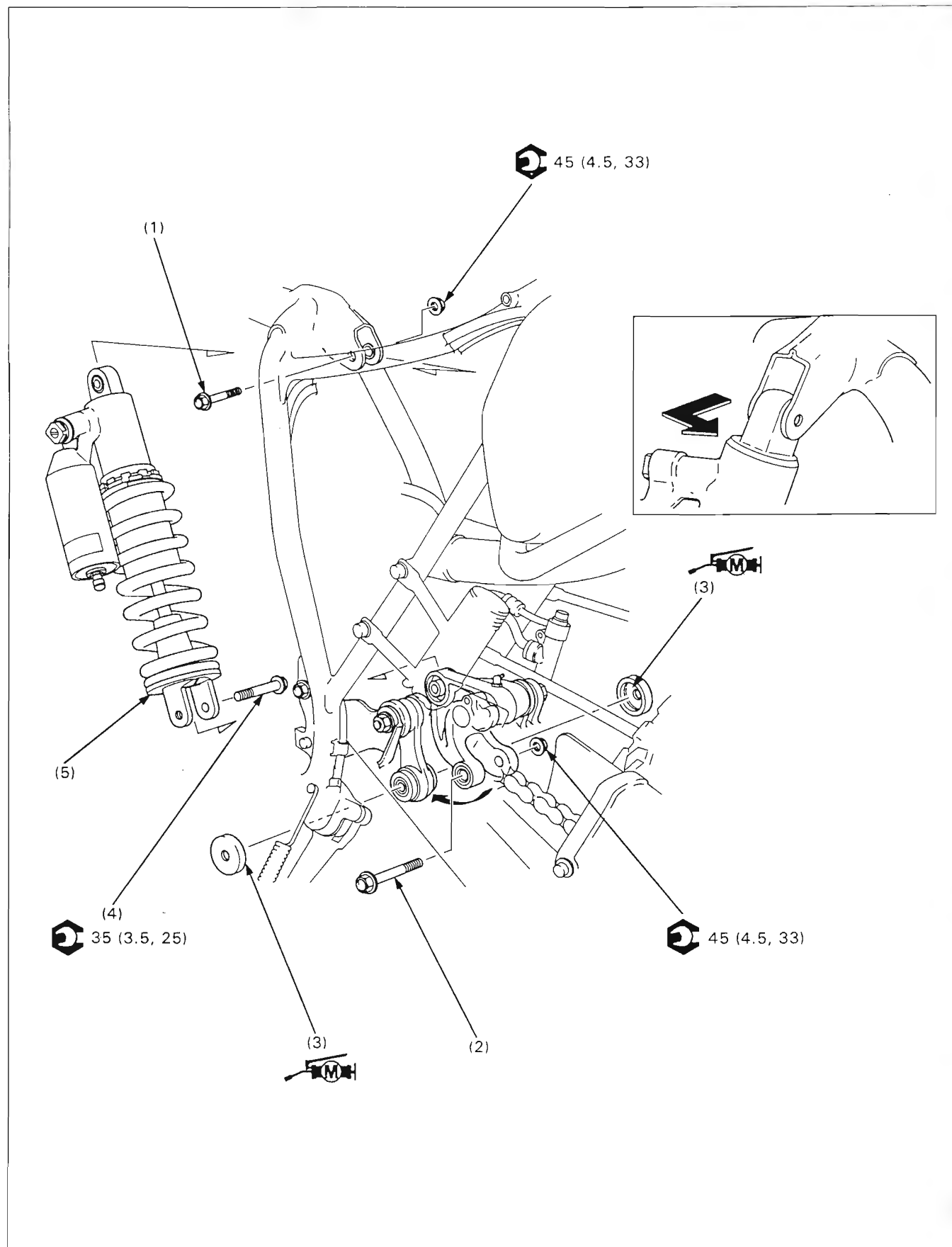
- Replace the wheel bearings as a set.
- For wheel bearing replacement, refer to the section 1 of the Common Service Manual.

Requisite Service

- Rear wheel removal/installation (page 12-2)

Procedure		Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake disc bolt	4	
(2)	Rear brake disc	1	At installation, install with the "MIN. TH. 4 mm" mark facing out.
(3)	Right dust seal	1	
(4)	Driven sprocket bolt/nut	6/6	
(5)	Driven sprocket	1	
(6)	Bearing retainer	1	<ul style="list-style-type: none"> • Use retainer wrench A (07710—010100) and retainer wrench body (07710—0010401). • After installation, peen the retainer in four places.
(7)	Left dust seal	1	
(8)	Right wheel bearing (6203)	1	
(9)	Distance collar	1	
(10)	Left wheel bearing (6303)	1	At installation, drive a new left bearing in the hub first, then in a new right bearing.

Shock Absorber Removal/Installation



▲ WARNING

- Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.
- The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.
- Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury if it is heated or pierced.

NOTE

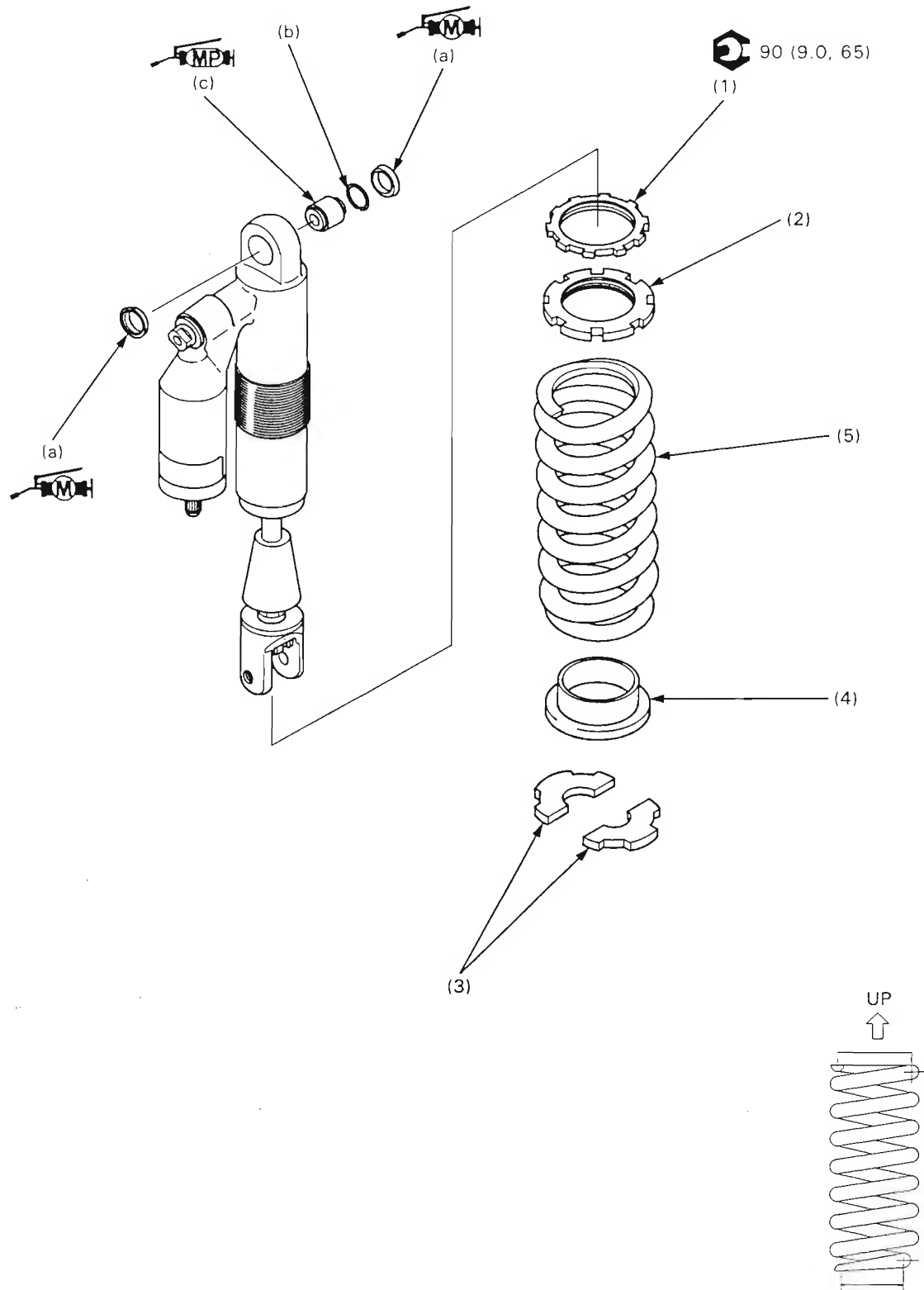
- Adjust the shock absorber spring to the softest position for disassembly.

Requisite Service

- Air cleaner case removal/installation (page 5-9)
- Raise the rear wheel off the ground and support the motorcycle.

Procedure		Q'ty	Remarks
Removal Order			
(1)	Upper mounting bolt	1	Installation is in the reverse order of removal. After removing, pull out the shock absorber upper end rearward.
(2)	Shock link-to-arm bolt	1	
(3)	Dust seal cap	2	
(4)	Lower mounting bolt	1	Raise the swingarm slowly until the lower mounting bolt can be removed. To avoid damage to the reservoir portion of the shock absorber, incline it to the right side.
(5)	Shock absorber	1	Move the shock absorber to the upper left side and out of the frame. Disassembly (page 12-8)

Shock Absorber Disassembly/Assembly



⚠ WARNING

- Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.
- The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.
- Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury if it is heated or pierced.

Requisite Service

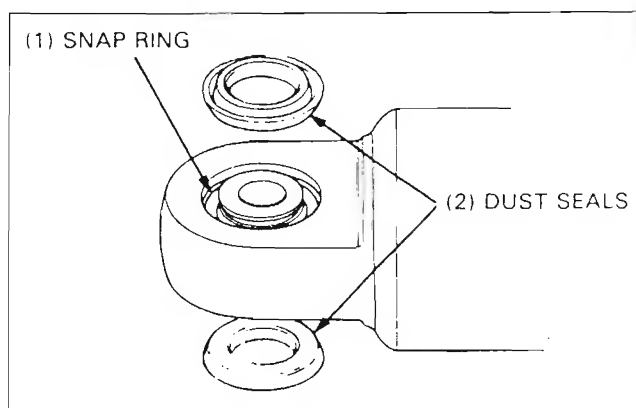
- Shock absorber removal/installation (page 12-6)

Procedure		Q'ty	Remarks
	Removal Order		
(1)	Spring lock nut	1	Installation is in the reverse order of removal. Loosen enough to remove the spring seat stopper.
(2)	Spring adjust nut	1	
(3)	Spring seat stopper	2	At assembly, adjust the spring installed length (page 1-11).
(4)	Spring seat	1	
(5)	Shock spring	1	At assembly, the tapered end faces toward the bottom.
(a)	Dust seal	2	
(b)	Stopper ring	1	Replacement (page 12-10)
(c)	Spherical bearing	1	

Spherical Bearing Replacement

Check the spherical bearing for wear or damage. If it is worn or damaged, it must be replaced.

Remove the dust seals.



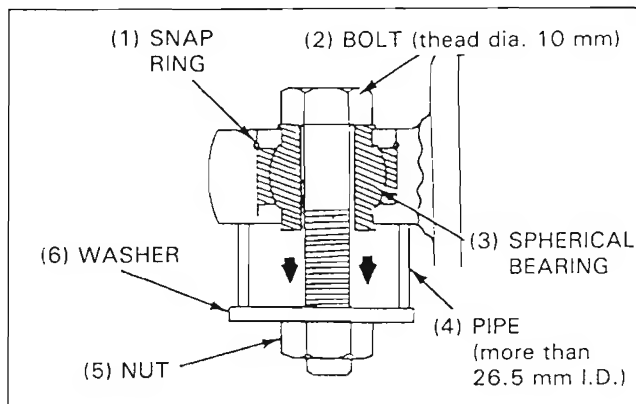
Prepare the following items for bearing replacement:

- metal pipe for the base holder (I.D. 26.5 mm over).
- metal pipe for the driver (O.D. 23 x 20 mm length).
- flange bolt and nut (Thread dia 10 mm).
- two suitable washers for the pipe (I.D. 26.5 mm over).

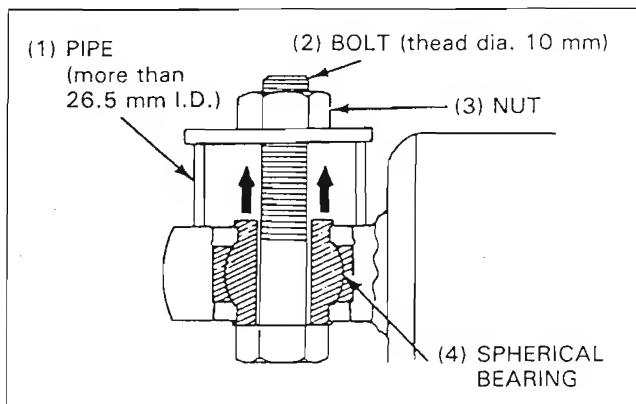
Assemble these items onto the upper mount as shown.

Tighten the bolt and nut to gain access to snap ring removal.

Remove the snap ring.



Tighten the bolt and nut to pull the spherical bearing out of the upper mount.



Apply molybdenum disulfide grease to the new spherical bearing.

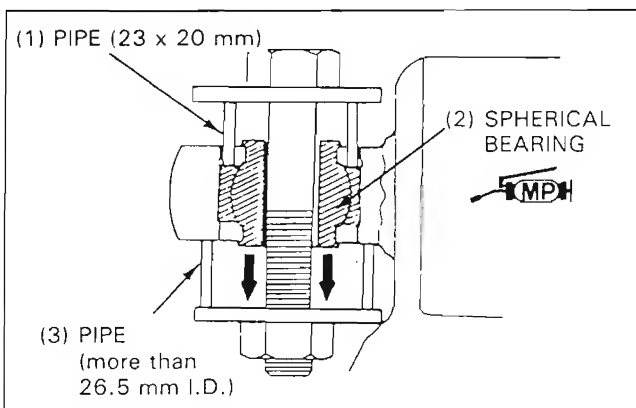
Assemble the bearing, bolt, nut, washers and pipes onto the upper mount as shown.

Tighten the bolt and nut and install the spherical bearing onto the upper mount.

NOTE

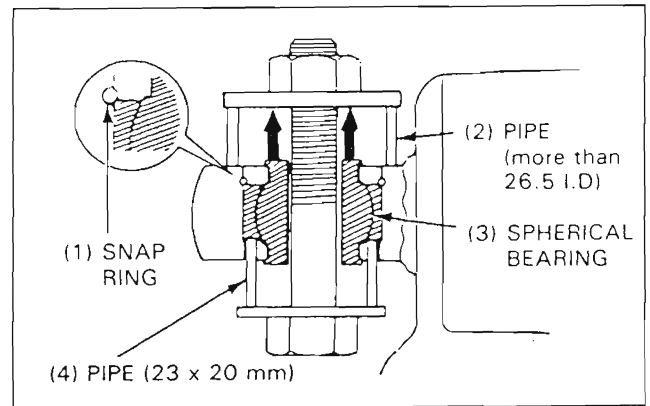
- Drive in the bearing evenly; do not allow it to tilt.

Disassemble the bolt, nut, washer and pipes.

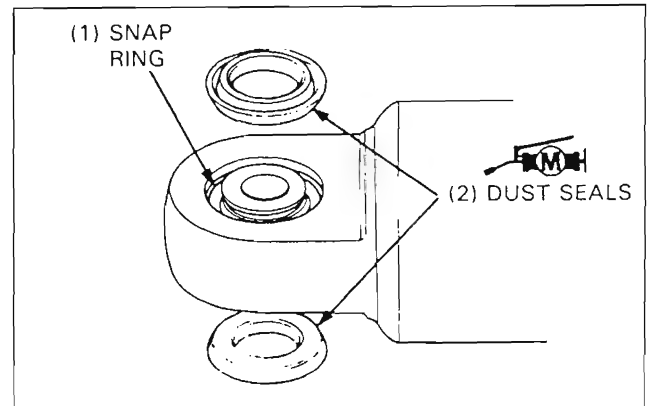


Install a new snap ring into the groove of the upper mount securely.

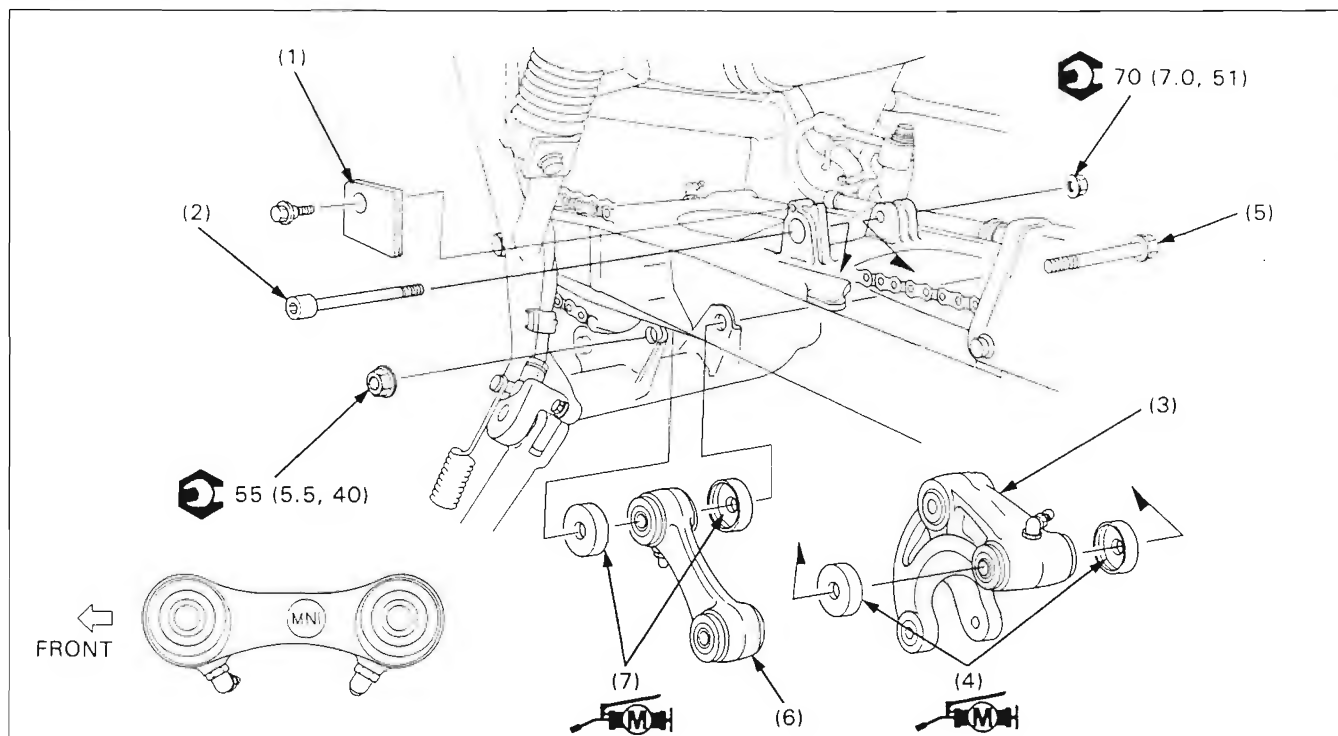
Assemble the bolt, nut, washers and pipes onto the upper mount as shown.
Tighten the bolt and nut and press the spherical bearing onto the upper mount with the snap ring end.



Apply molybdenum disulfide grease to the lips of new dust seals and install them.



Suspension Linkage Removal/Installation

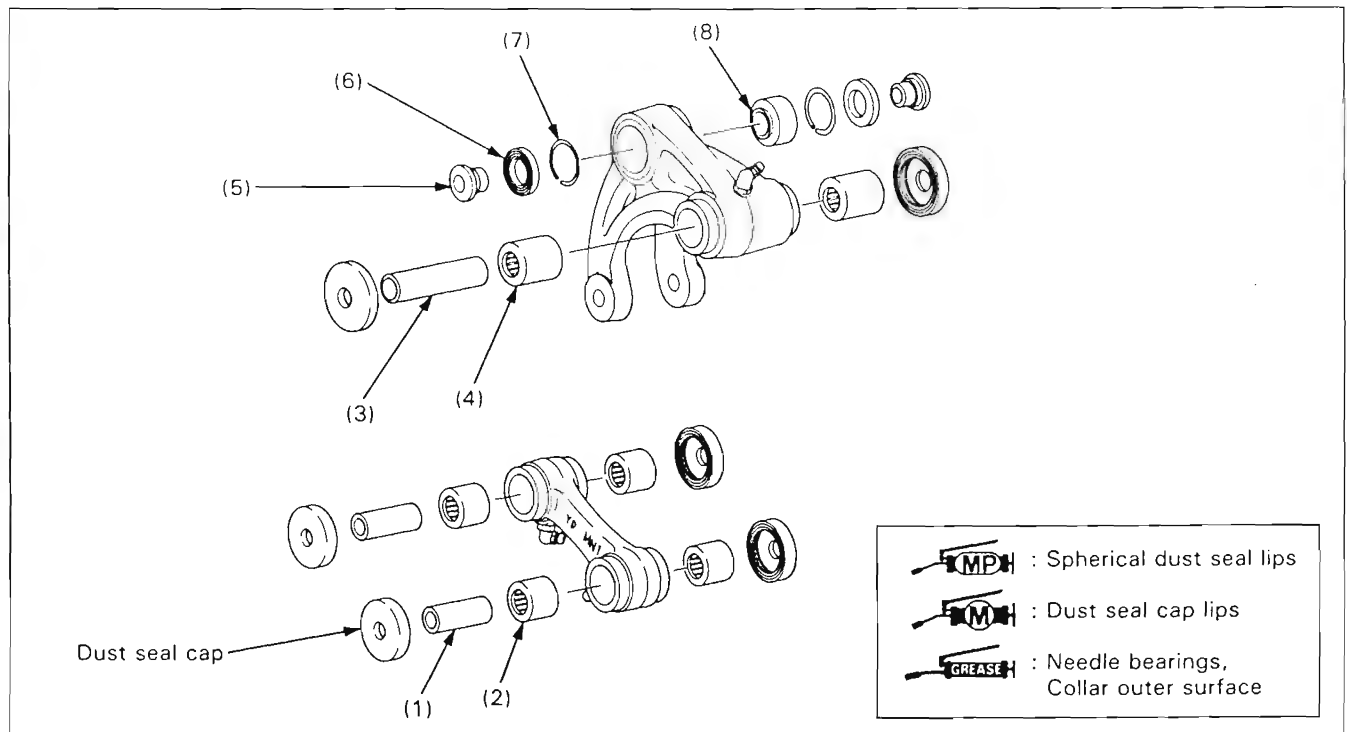


Requisite Service

- Shock absorber removal/installation (page 12-6)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Bolt cover	1	Disassembly/assembly (page 12-13)
(2)	Shock arm-to-swingarm bolt	1	
(3)	Shock arm	1	
(4)	Dust seal cap	2	
(5)	Shock link-to-frame bolt	1	At installation, install with "MN1" mark facing to the left.
(6)	Shock link	1	
(7)	Dust seal cap	2	

Suspension Linkage Disassembly/Assembly



Requisite Service

- Shock linkage removal/installation (page 12-12)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Shock link collar	2	Replacement (page 12-14)
(2)	Needle bearing	4	
(3)	Shock arm collar	1	
(4)	Needle bearing	2	
(5)	Spherical bearing collar	2	
(6)	Dust seal	2	
(7)	Snap ring	2	
(8)	Spherical bearing	1	Replacement (page 12-15)

Needle Bearing Replacement

Shock link

Press the needle bearings out of the shock link.

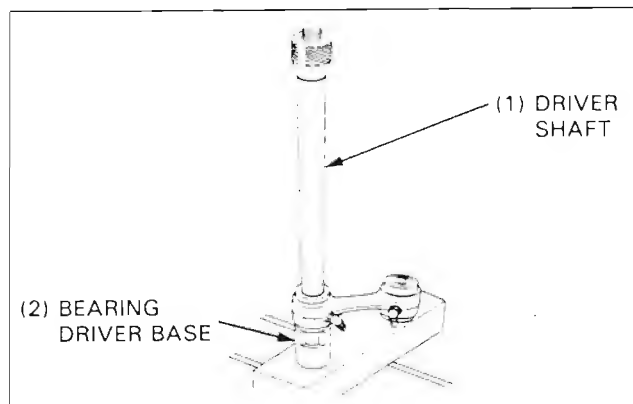


Driver shaft

07946-MJ00100

Bearing driver base

07HMF-KS60100



Press the new needle bearing into the shock link with the marks facing out.

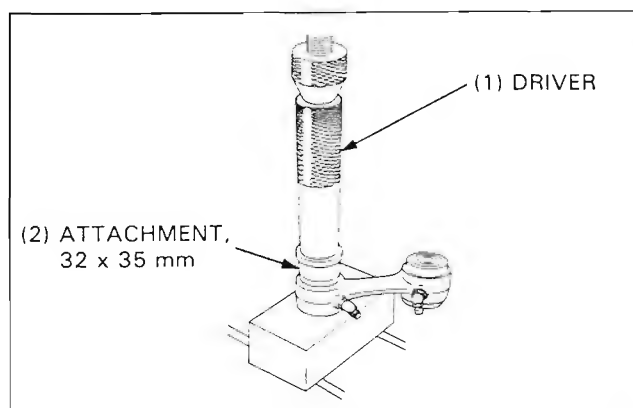


Driver

07749-0010000

Attachment, 32 x 35 mm

07746-0010100



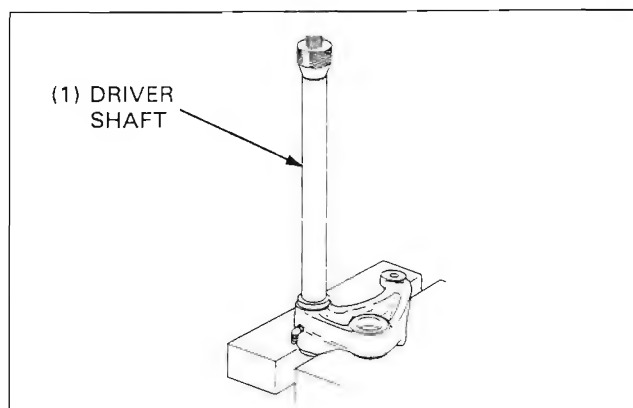
Shock arm

Press the needle bearings out of the shock arm.



Driver shaft

07946-MJ00100



Press a new needle bearing into the shock arm with the marks facing out.

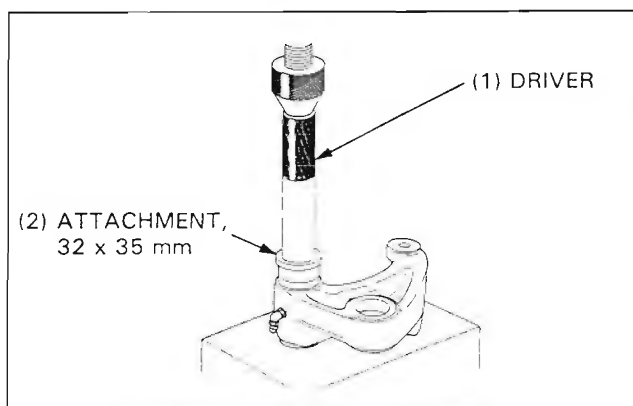


Driver

07749-0010000

Attachment, 32 x 35 mm

07746-0010100



Spherical Bearing Replacement

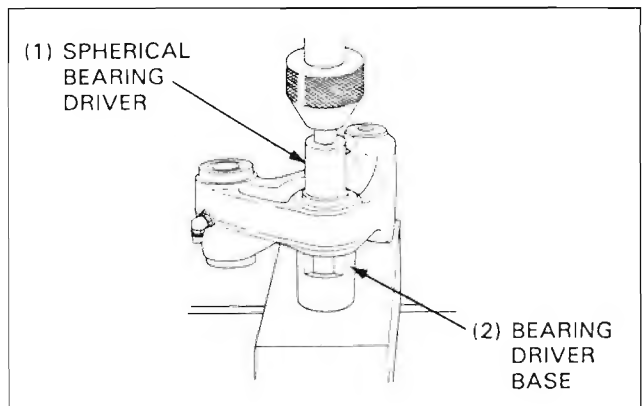
Remove the snap rings on both sides (page 12-13).
Press the spherical bearing out of the shock arm.

Install the snap ring into the lower groove.
Press a new spherical bearing into the shock arm.
Set the second snap ring into place.

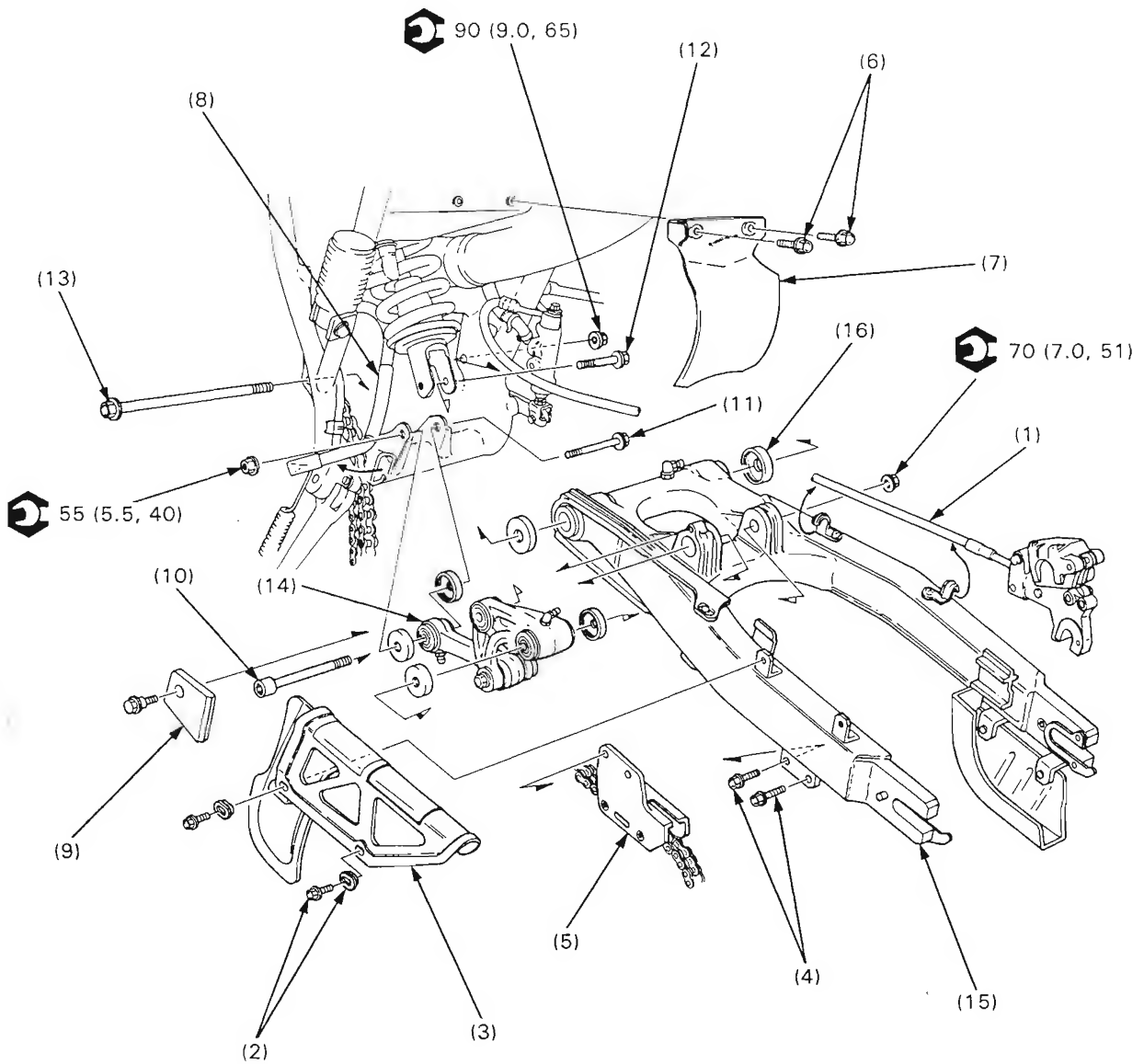
S TOOL


Spherical bearing driver
Bearing driver base

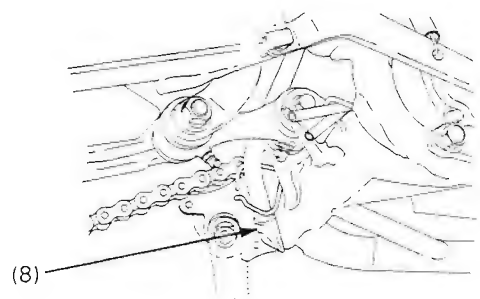
07946—KA30200
07HMF—KS60100



Swingarm Removal/Installation



 : Dust seal cap lips

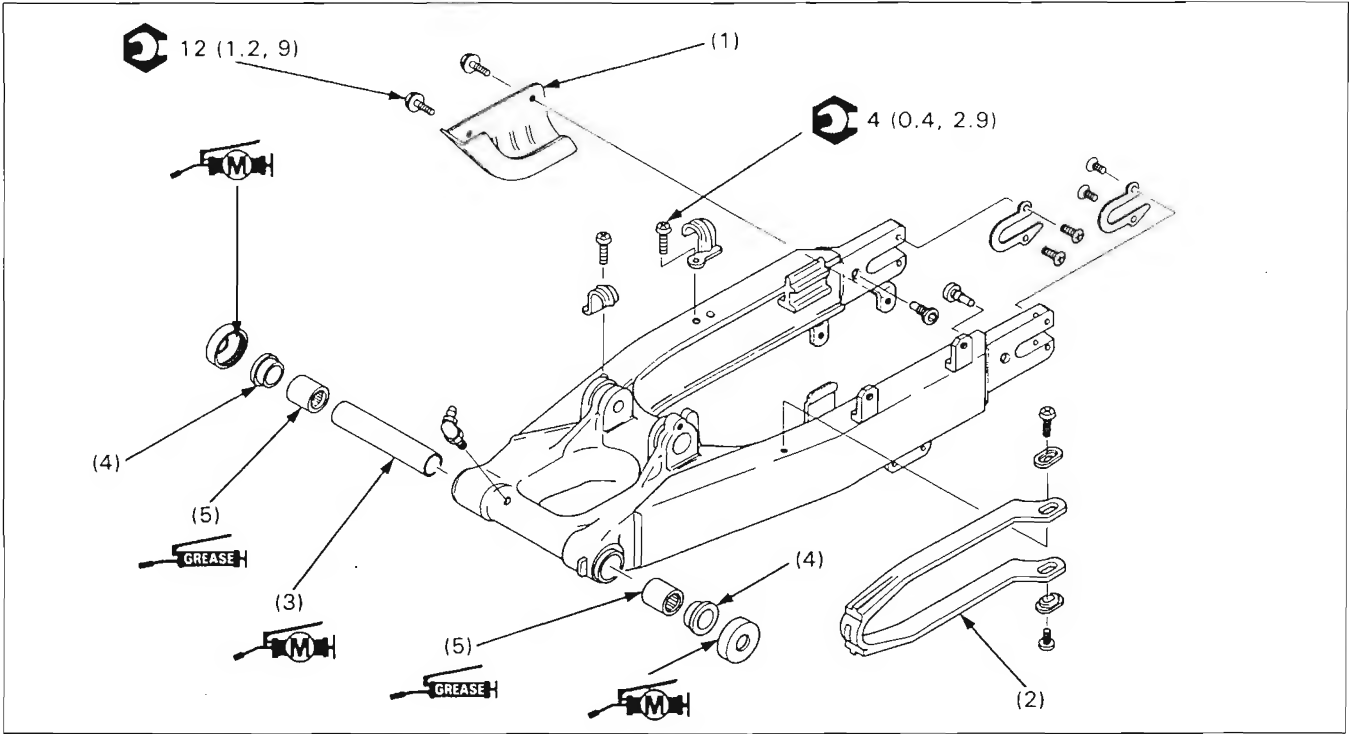


Requisite Service

- Rear wheel removal/installation (page 12-2)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Brake hose	1	Installation is in the reverse order of removal. Remove from the clamps. CAUTION • Do not twist the brake hose.
(2)	Chain cover bolt/collar	2/2	
(3)	Drive chain cover	1	
(4)	Chain guide bolt	2	
(5)	Drive chain guide	1	
(6)	Mud guard bolt	2	
(7)	Mud guard	1	
(8)	Air cleaner breather tube	1	Remove from the clamp.
(9)	Bolt cover	1	
(10)	Shock arm-to-swingarm bolt	1	
(11)	Shock link-to-frame bolt	1	
(12)	Shock absorber lower mount bolt	1	
(13)	Swingarm pivot bolt	1	
(14)	Shock linkage assembly	1	
(15)	Swingarm assembly	1	Disassembly/assembly (page 12-18)
(16)	Dust seal cap	6	

Swingarm Disassembly/Assembly



CAUTION

- Do not attempt to weld or repair a damaged swingarm.

Requisite Service

- Swingarm removal/installation (page 12-16)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of Disassembly.
(1)	Brake disc guard	1	
(2)	Drive chain slider	1	
(3)	Center collar	1	Replacement (page 12-19)
(4)	Pivot thrust bushing	2	
(5)	Needle bearing	2	

Pivot Bearing Replacement

Remove the pivot thrust bushing.

Using the needle bearing remover, extract the needle bearings.

S. TOOL

Needle bearing remover

07946-MA70000 or

Bearing remover set

07936-3710001

— spindle

07936-3710600

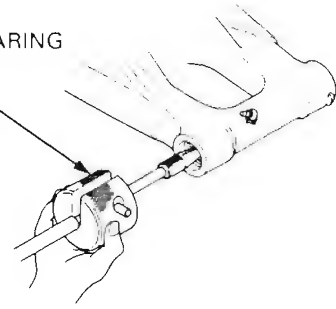
— remover handle

07936-3710100

— remover weight

07936-3710200

(1) NEEDLE BEARING
REMOVER



Carefully press the new needle bearings (making facing out) into the swingarm pivot.

Retract the press, position the pivot thrust bushing and press it into place.

S. TOOL

Driver

07749-0010000

Attachment, 24 x 26 mm

07746-0010700

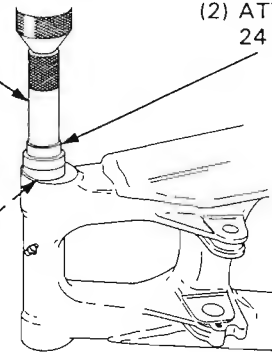
Pilot, 20 mm

07746-0040500

(1) DRIVER

(2) ATTACHMENT,
24 x 26 mm

(3) PILOT,
20 mm



MEMO

13. Brake System

Service Information	13-1	Rear Master Cylinder Disassembly/Assembly	13-8
Troubleshooting	13-1		
Brake Pad Replacement	13-2	Rear Brake Caliper Disassembly/Assembly	13-10
Front Master Cylinder Disassembly/Assembly	13-4	Rear Brake Pedal Removal/Installation	13-12
Front Brake Caliper Disassembly/Assembly	13-6		

Service Information

⚠ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
 - Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard of airborne asbestos fibers.
-
- Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts. Be very careful whenever you remove the reservoir cap: make sure the front reservoir is horizontal first.
 - Never allow contaminants (dirt, water, etc.) to get into an open reservoir.
 - Once the hydraulic system has been opened, or if the brakes feel spongy, the system must be bled.
 - Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid as they may not be compatible.
 - Always check brake operation before riding the motorcycle.

Troubleshooting

Brake Lever/Pedal Soft or Spongy

- Air bubbles in the hydraulic system
- Leaking hydraulic system
- Contaminated brake pad/disc
- Worn caliper piston seal
- Worn master cylinder piston cups
- Worn brake pad/disc
- Contaminated caliper
- Caliper not sliding properly
- Low brake fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worn caliper piston
- Sticking/worn master cylinder piston
- Contaminated master cylinder
- Bent brake lever/pedal

Brake Lever/Pedal Hard

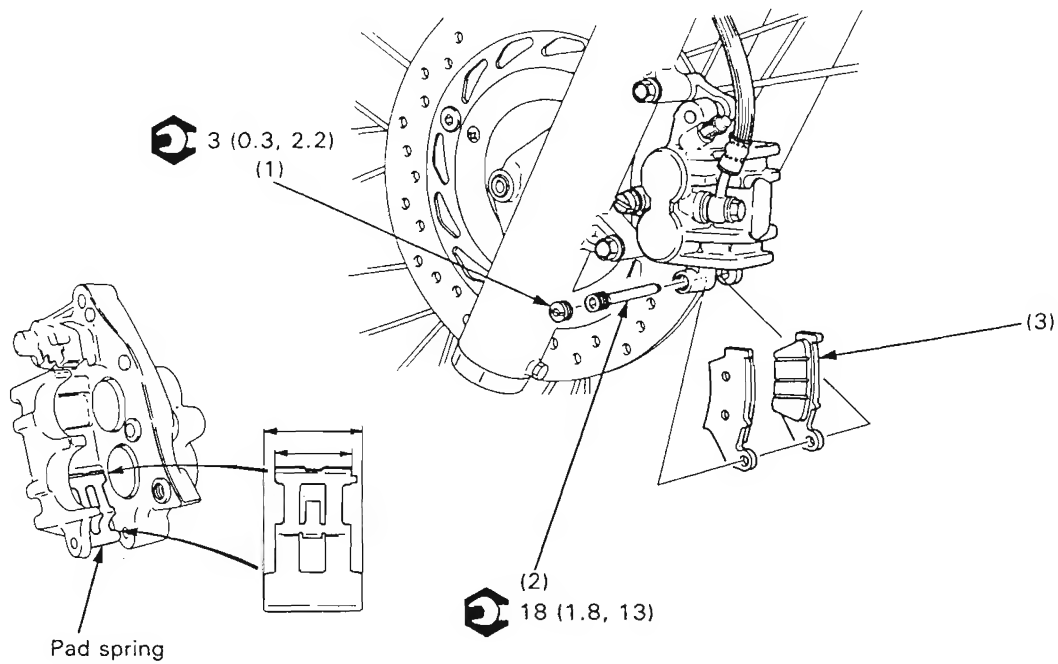
- Clogged/restricted brake system
- Sticking/worn caliper piston
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Worn caliper piston seal
- Sticking/worn master cylinder piston
- Bent brake lever/pedal

Brake Drag

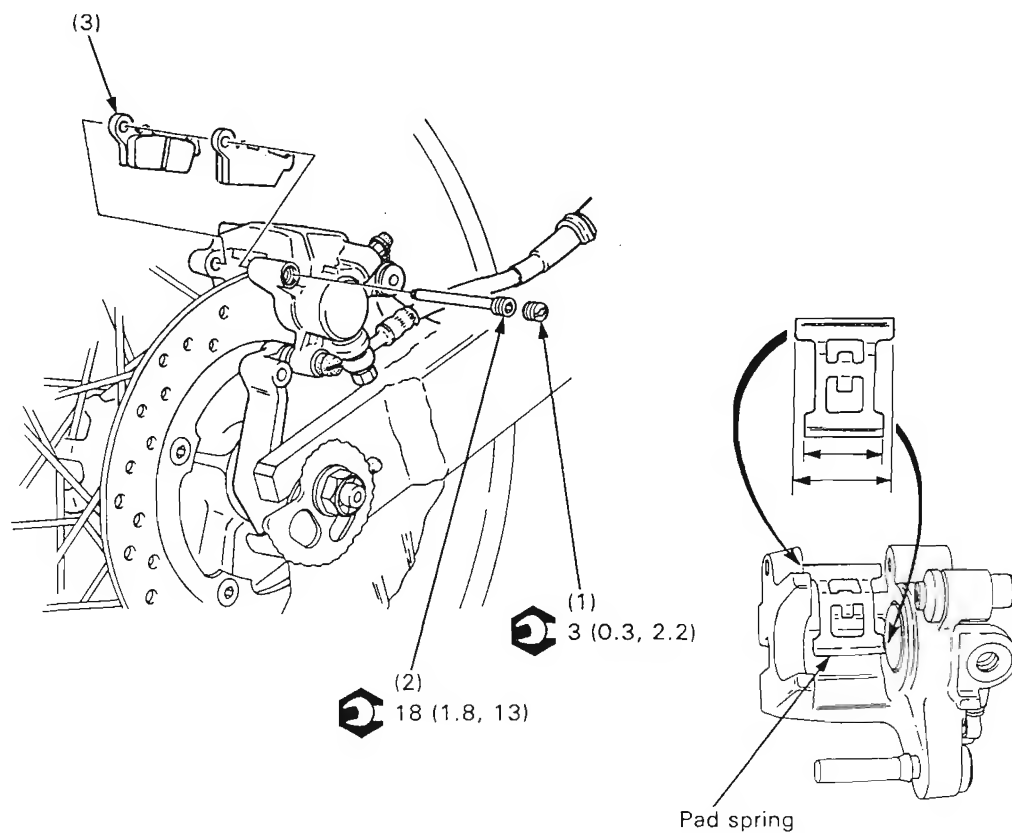
- Contaminated brake pad/disc
- Misaligned wheel
- Badly worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Sticking/worn caliper piston

Brake Pad Replacement

Front



Rear



▲ WARNING

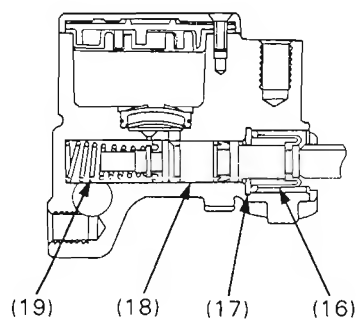
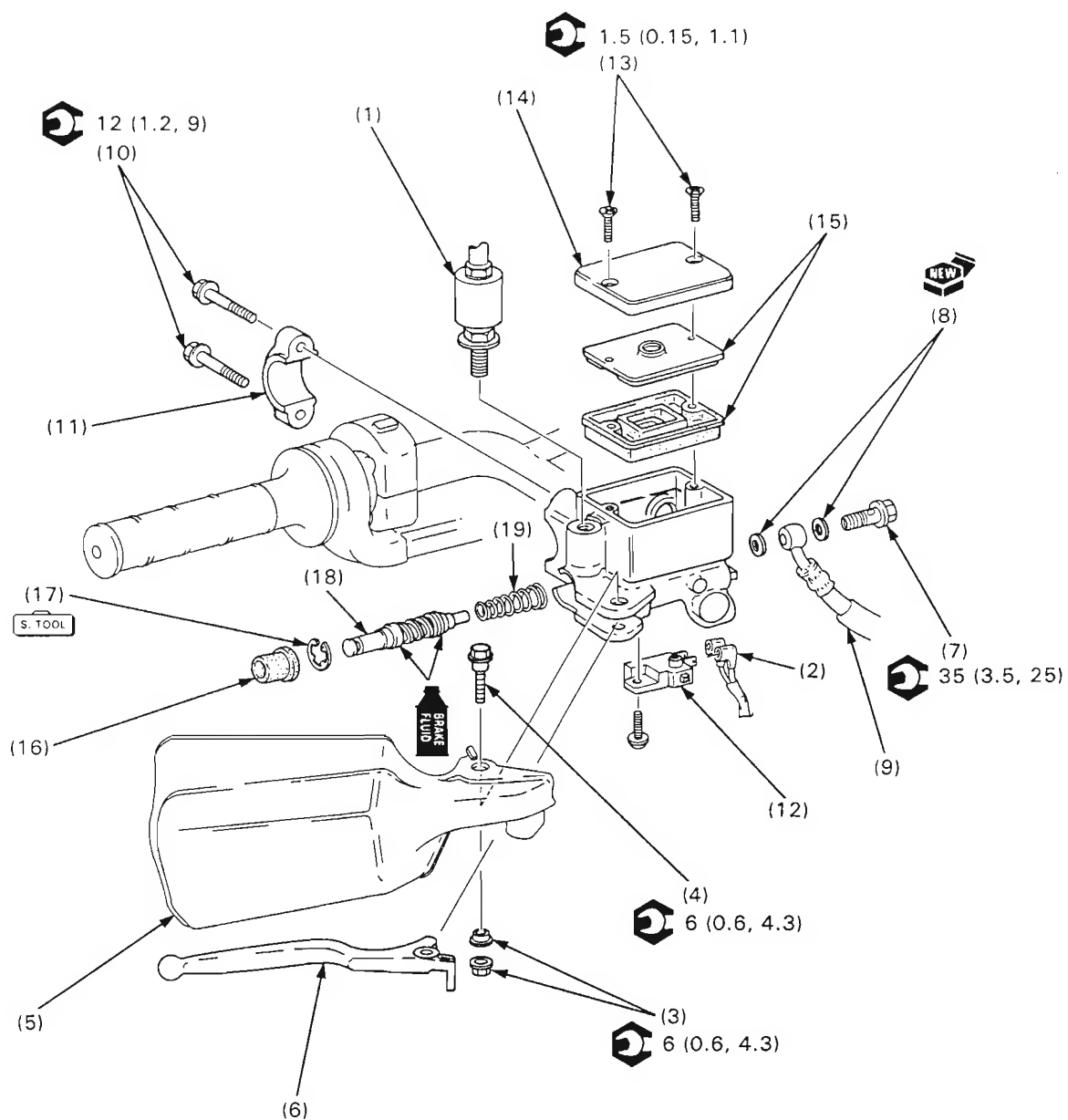
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.
- After replacement, operate the brake lever to seat the caliper pistons against the pads.
- Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard of airborne asbestos fibers.

NOTE

- The brake pads can be replaced without disconnecting the hydraulic system.
- Replace the brake pads as a set.
- Apply a thin coat of grease onto the pad pin and pad pin plug threads to prevent rust.

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pad pin plug	1	NOTE <ul style="list-style-type: none"> • Push the pistons all the way in to provide clearance the new pads. • Before installing the pads, make sure that the pad spring is positioned properly as shown.
(2)	Pad pin	1	
(3)	Pad	2	

Front Master Cylinder Disassembly/Assembly



▲WARNING

- Check the brake system by applying the brake after bleeding.

CAUTION

- Avoid spilling fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.
- When removing the oil bolt, cover the end of the brake hose to prevent contamination. Do not allow foreign material to enter the system.
- Do not allow the lips of the cups to turn inside out and be certain the snap ring is firmly seated in the groove.

NOTE

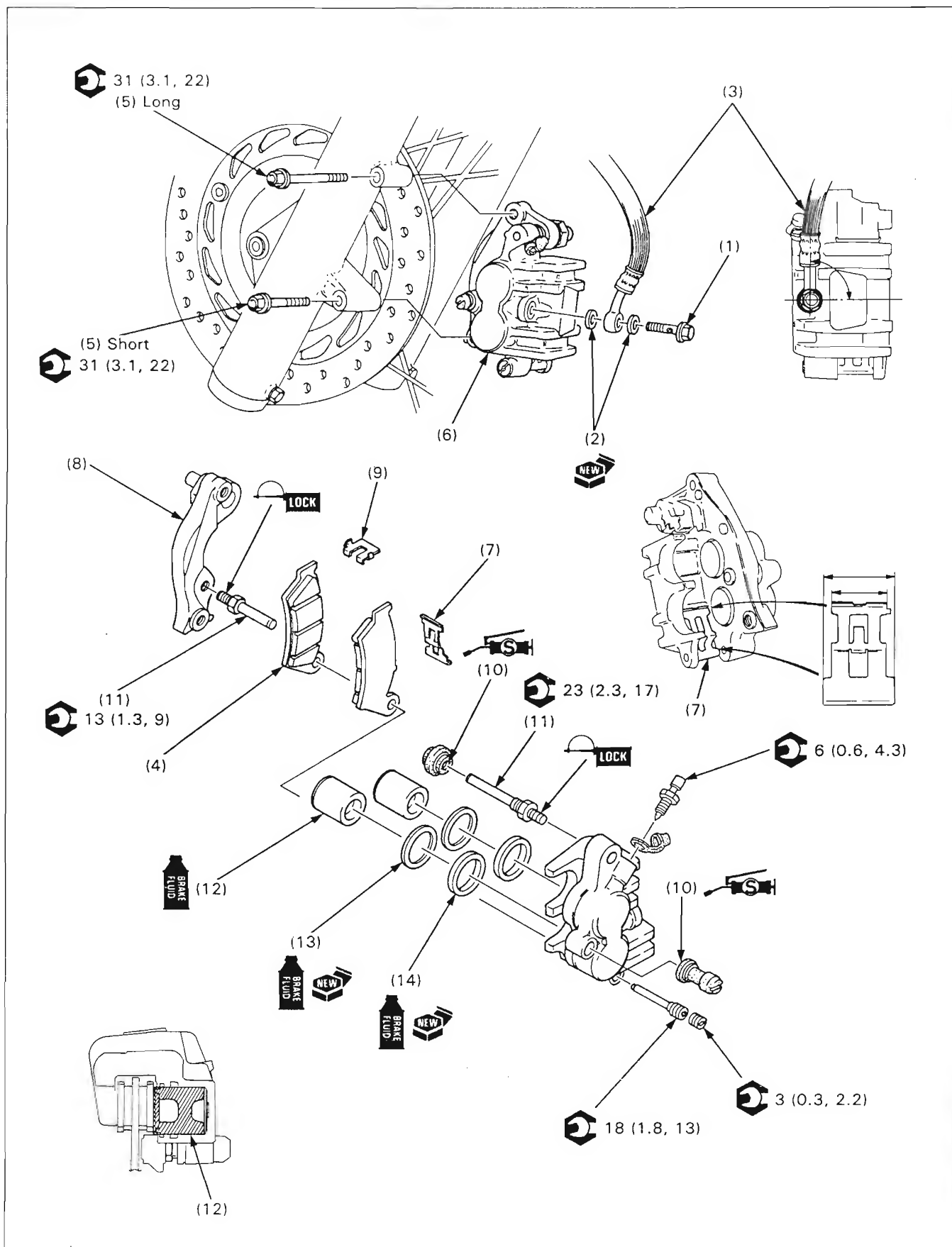
- Use only DOT 4 brake fluid from a sealed container.

Requisite Service

- Front brake fluid draining/bleeding (section 17 in Common Service Manual)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Rear view mirror	1	
(2)	Brake switch wire	2	
(3)	Brake lever pivot nut/collar	1/1	
(4)	Brake lever pivot bolt	1	
(5)	Knuckle guard	1	
(6)	Brake lever	1	
(7)	Oil bolt	1	
(8)	Sealing washer	2	
(9)	Brake hose	1	
(10)	Master cylinder holder bolt	2	
(11)	Master cylinder holder	1	Remove the master cylinder assembly from the handlebar.
(12)	Brake switch	1	
(13)	Reservoir cap screw	2	
(14)	Reservoir cap	1	
(15)	Set plate/diaphragm	1/1	
(16)	Boot	1	
(17)	Snap ring	1	Use snap ring pliers (07914—3230001).
(18)	Master piston	1	
(19)	Spring	1	

Front Brake Caliper Disassembly/Assembly



▲WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.
- Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard of airborne asbestos fibers.

CAUTION

- Spilled brake fluid will damage painted, plastic, or rubber parts.

- After replacement, operate the brake lever to seat the caliper pistons against the pads.

NOTE

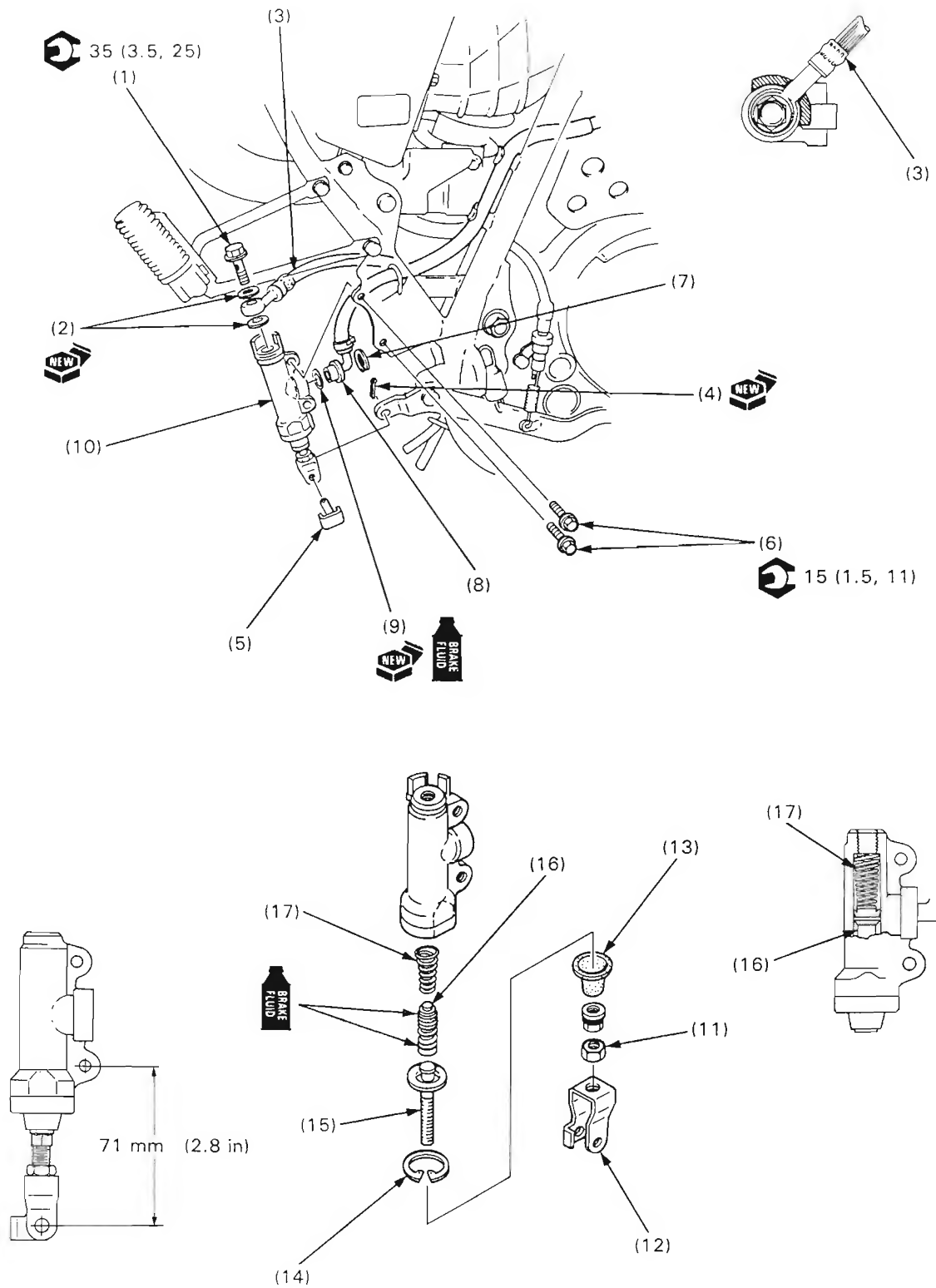
- Do not remove the bleed valve unless it is replaced.

Requisite Service

- Front brake fluid draining/bleeding (section 17 in Common Service Manual)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	
(4)	Pad	2	Removal/installation (page 13-2)
(5)	Caliper mounting bolt	2	
(6)	Brake caliper assembly	1	
(7)	Pad spring	1	Install as shown.
(8)	Caliper bracket	1	
(9)	Pad retainer	1	
(10)	Caliper pin bolt boot	2	
(11)	Caliper pin bolt	2	Do not remove unless necessary.
(12)	Caliper piston	2	
(13)	Dust seal	2	CAUTION • Be careful not to damage the piston sliding surface.
(14)	Piston seal	2	

Rear Master Cylinder Disassembly/Assembly



▲ WARNING

- Check the brake system by applying the brake after bleeding.

CAUTION

- Avoid spilling fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.
- When removing the oil bolt, cover the end of the brake hose to prevent contamination. Do not allow foreign material to enter the system.
- Do not allow the lips of the cups to turn inside out and be certain the snap ring is firmly seated in the groove.

NOTE

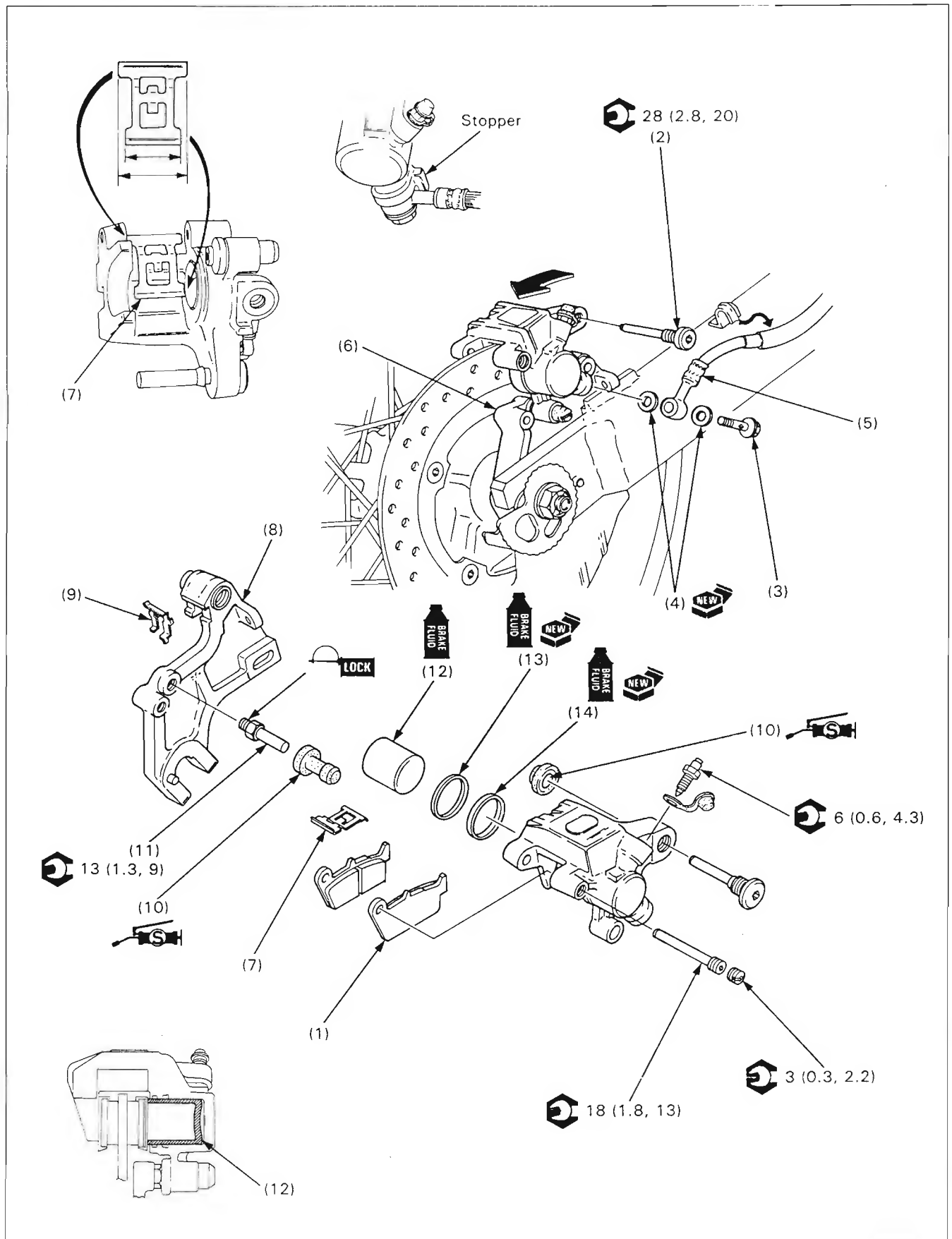
- Use only DOT 4 brake fluid from a sealed container.
- The master piston, piston cups and spring must be replaced as a set.

Requisite Service

- Rear brake fluid draining/bleeding (section 17 in Common Service Manual)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Oil bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	At installation, align the brake hose fitting with the master cylinder grooves.
(4)	Cotter pin	1	
(5)	Joint pin	1	
(6)	Mounting bolt	2	
(7)	Snap ring	1	Use snap ring pliers (07914—3230001).
(8)	Reservoir hose joint	1	
(9)	O-ring	1	
(10)	Master cylinder assembly	1	
(11)	Lock nut	1	Loosen the nut.
(12)	Push rod joint	1	
(13)	Boot	1	
(14)	Snap ring	1	Use snap ring pliers (07914—3230001).
(15)	Push rod	1	
(16)	Master piston	1	
(17)	Spring	1	

Rear Brake Caliper Disassembly/Assembly



▲ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Check the brake system by applying the brake after the air bleeding.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer.
- Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard of airborne asbestos fibers.

CAUTION

- Spilled brake fluid will damage painted, plastic, or rubber parts.

NOTE

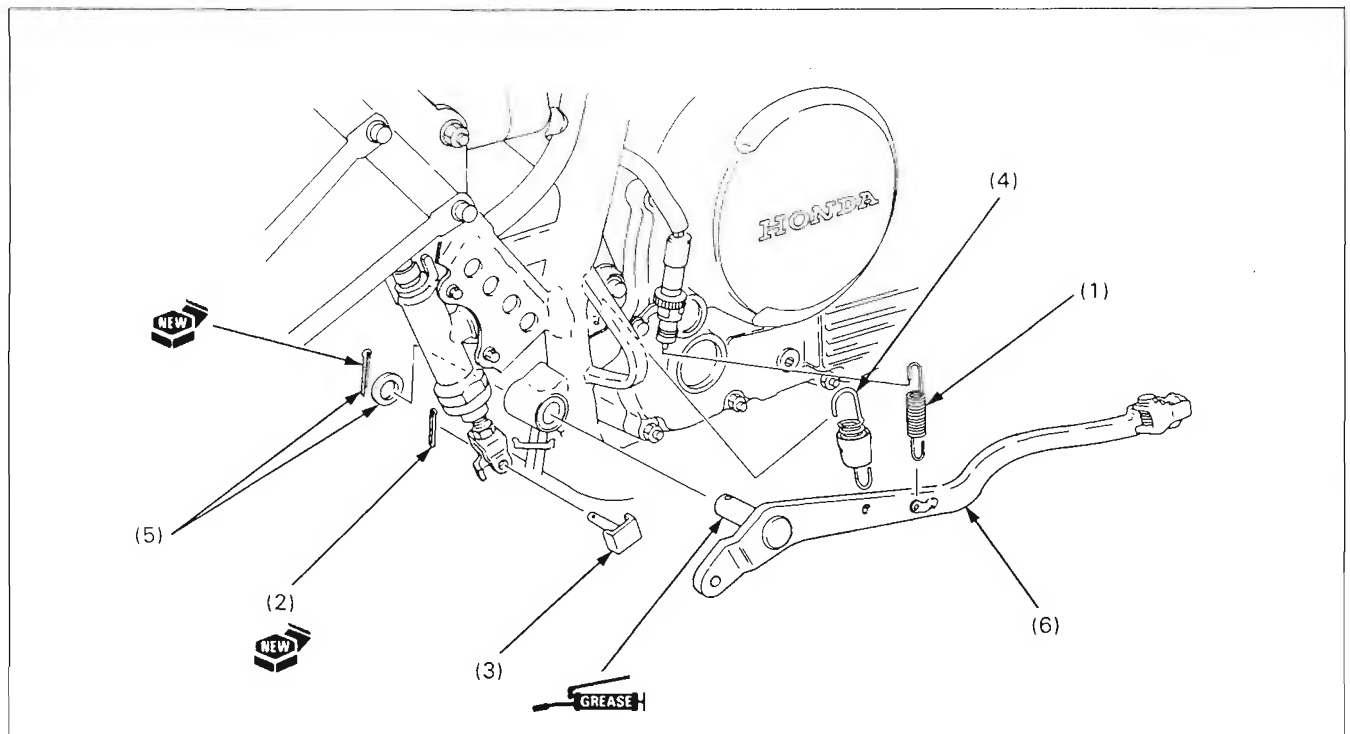
- Do not remove the bleed valve unless it is replaced.

Requisite Service

- Rear brake fluid draining/bleeding (section 17 in Common Service Manual)
- Rear wheel removal/installation (page 12-2)

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Pad	2	Removal/installation (page 13-2)
(2)	Caliper stopper pin bolt	1	
(3)	Oil bolt	1	Remove the brake hose from the clamp and swing the caliper rearward.
(4)	Sealing washer	2	
(5)	Brake hose	1	After removing the hose, remove the rear wheel.
(6)	Brake caliper assembly	1	
(7)	Pad spring	1	
(8)	Caliper bracket	1	
(9)	Pad retainer	1	
(10)	Caliper pin bolt boot	2	
(11)	Caliper pin bolt	1	Do not remove unless necessary.
(12)	Caliper piston	1	
(13)	Dust seal	1	CAUTION • Be careful not to damage the piston sliding surface.
(14)	Piston seal	1	

Rear Brake Pedal Removal/Installation



Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Brake light switch spring	1	
(2)	Cotter pin	1	
(3)	Joint pin	1	
(4)	Brake pedal return spring	1	
(5)	Cotter pin/washer	1/1	
(6)	Brake pedal	1	

14. Charging System/Alternator

Service Information	14-1	Charging System Inspection	14-5
System Location	14-2	Regulator/Rectifier	14-6
Troubleshooting	14-3	Alternator Removal/Installation	14-8
Battery Removal/Installation	14-4		

Service Information

⚠ WARNING

- The battery gives off explosive gases; keep sparks, flames, and cigarettes away. Provide adequate ventilation when charging or using the battery in an enclosed space.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous. If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.
- **KEEP OUT OF REACH OF CHILDREN.**

- Always turn off the ignition switch before disconnecting any electrical component.

CAUTION

- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.

- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.

NOTE

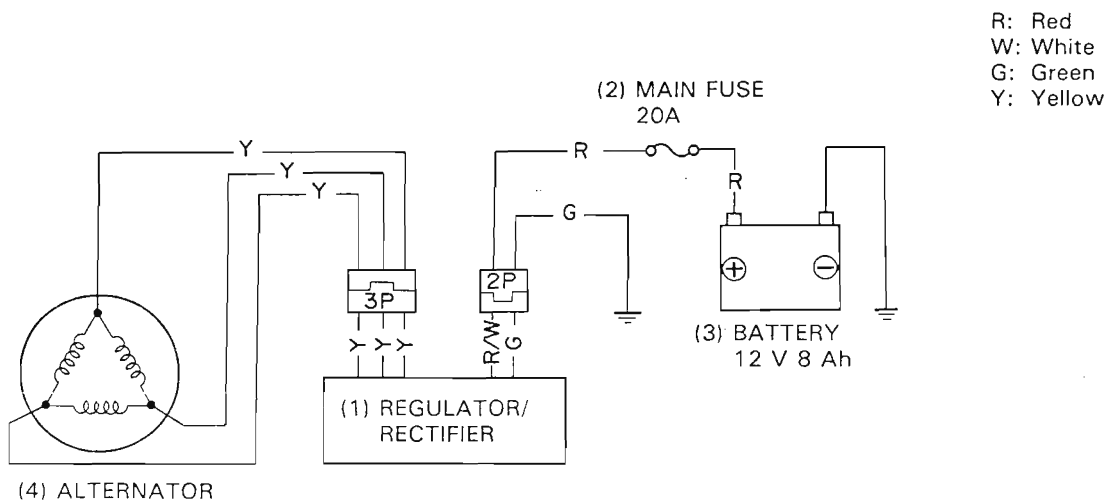
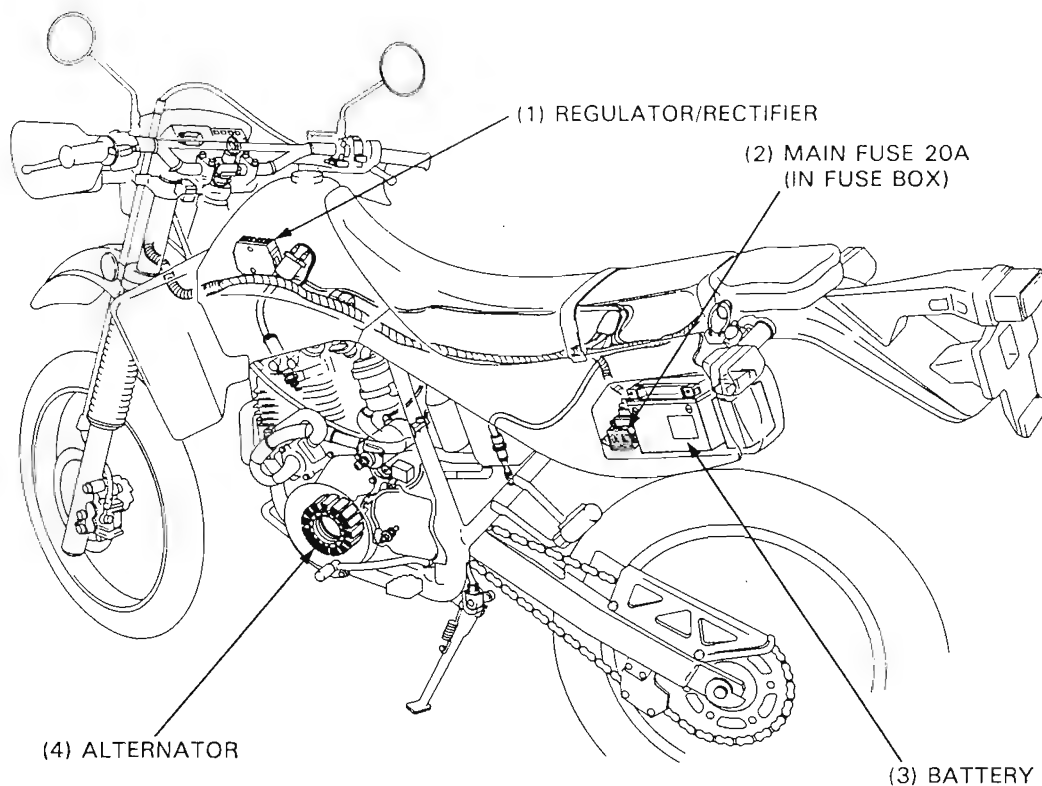
- The maintenance free (MF) battery must be replaced when it reaches the end of its service life.

CAUTION

- The MF battery caps should not be removed. Attempting to remove the sealing caps from the cells may damage the battery.

- The battery can be damaged if over charged or undercharged, or if left to discharge for long periods. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of the battery deteriorates after 2-3 years.
- Battery voltage may recover after battery charging, but under heavy load, battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected to be the problem. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check the use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight ON for long periods of time without riding the motorcycle.
- The battery will self-discharge when the motorcycle is not in use. For this reason, charge the battery every two weeks to prevent sulfation from forming.
- Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initial-charged.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 14-3).
- For battery testing/charging, refer to section 22 of the Common Service Manual.
- For charging system component locations, see page 14-2.

System Location



Troubleshooting

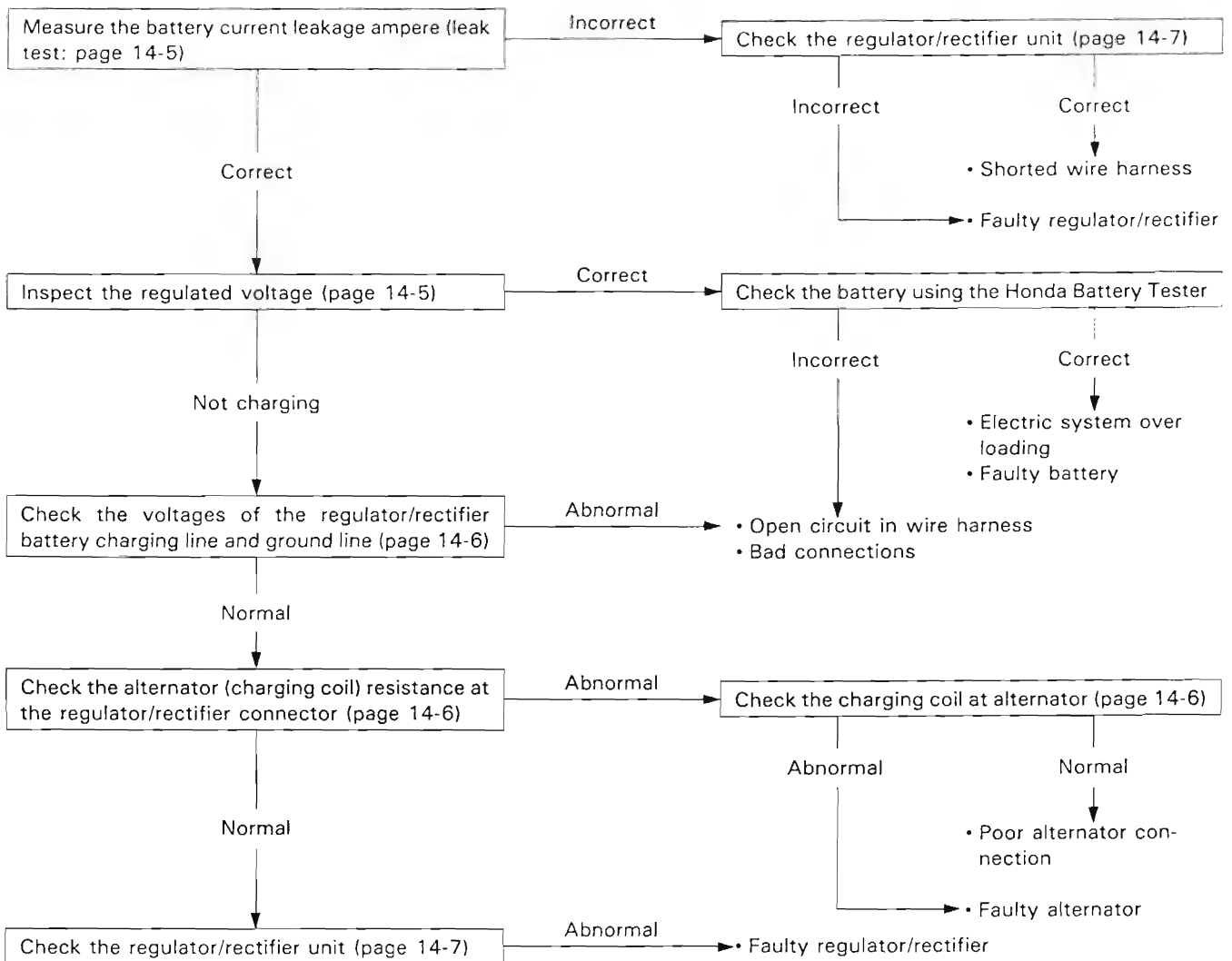
Battery Overcharging

- Faulty regulator/rectifier

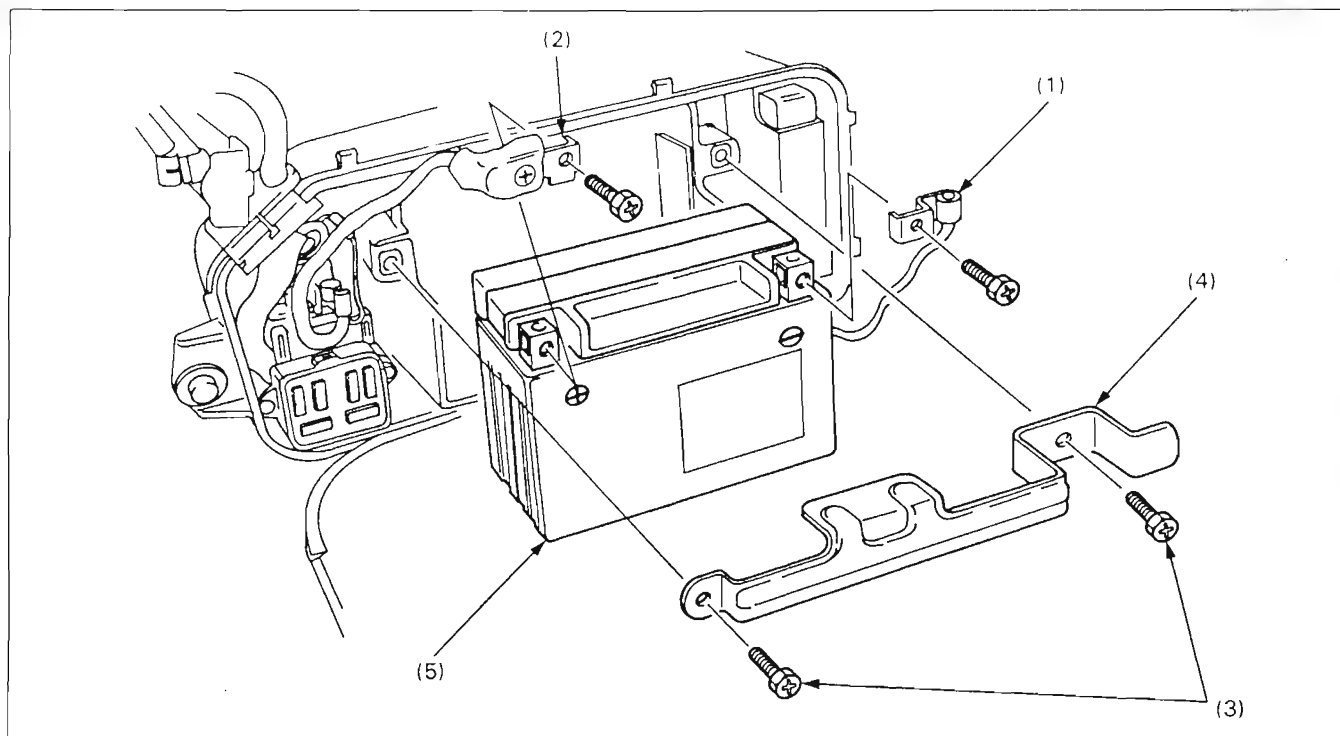
Battery Undercharging

NOTE

- In order to obtain accurate test readings, the battery must be fully charged and in good condition. Refer to the Common Service Manual, section 22, for instructions on checking the battery condition.



Battery Removal/Installation



NOTE

- Turn the ignition switch OFF, remove the negative terminal at the battery first, then remove the positive terminal.

Requisite Service

- Side cover removal/installation (page 2-2)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Negative terminal	1	
(2)	Positive terminal	1	
(3)	Battery holder bolt	2	
(4)	Battery holder	1	
(5)	Battery	1	

Charging System Inspection

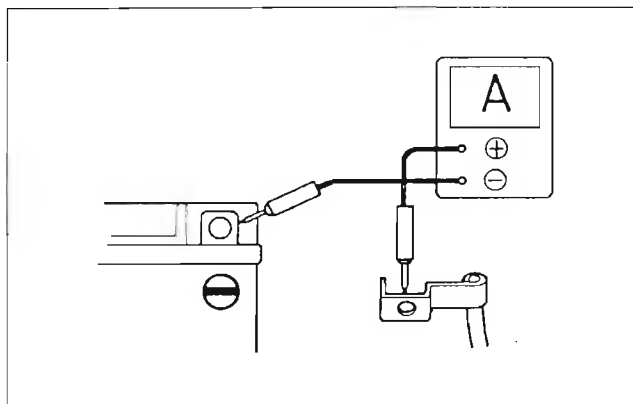
Leakage Test

Turn the ignition switch off, and disconnect the negative (–) cable from the battery.

Connect the ammeter (+) probe to the negative battery cable and the ammeter (–) probe to the battery (–) terminal. With the ignition switch off, check for current leakage.

NOTE

- When measuring the current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow larger than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow out the fuse in the tester.



Specified Current Leakage: 1 mA max

If current leakage exceeds the specified value, a shorted circuit is likely.

Locate the short by disconnecting connectors one by one and measuring the current.

Regulated Voltage/Ampere Inspection

NOTE

- Before performing this test, be sure the battery is fully charged and that the voltage between its terminals is greater than 13.0 V.

Start the engine and warm it up to operating temperature, then turn the ignition switch OFF.

Battery Regulated Voltage

Connect the multimeter between the battery terminals.

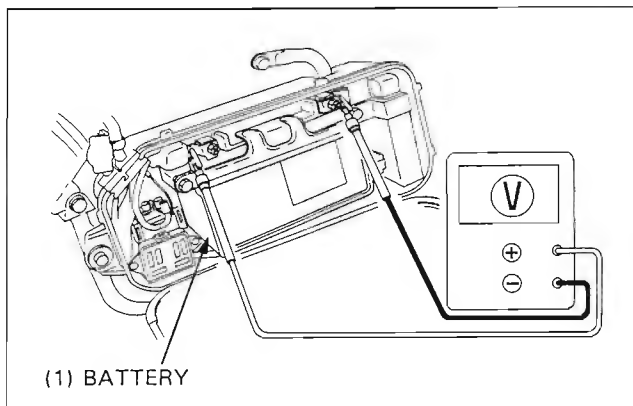
S. TOOL

Digital multimeter

07411–0020000 or
KS–AHM–32–003
(U.S.A. only)

Analog tester

07308–0020001 or
TH–5H (U.S.A. only)



⚠ WARNING

- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

Open the battery case cover and remove the main fuse (20 A). Connect the ammeter as shown.

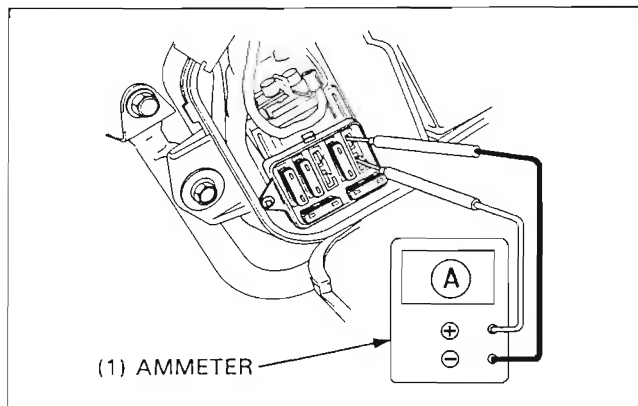
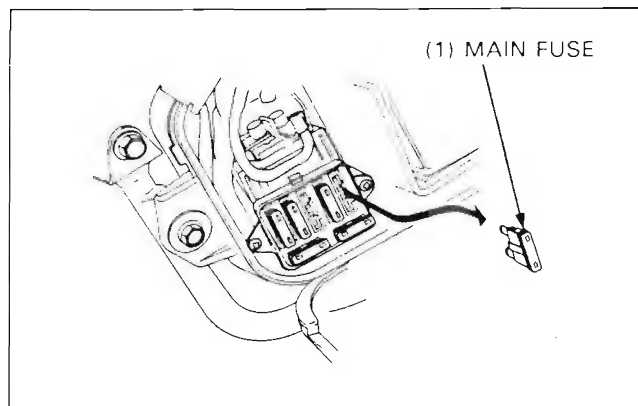
- ⊕ probe: Lower terminal
- ⊖ probe: Upper terminal

Start the engine and increase the engine speed gradually.

CAUTION

- Be careful not to short any tester probes.
- Although the current could be measured when the ammeter is connected between the battery positive terminal and the positive cable, a sudden surge of current to the starter motor could damage the ammeter.
- Always turn the ignition OFF when conducting the test. Disconnecting the ammeter or wires when current is flowing may damage the ammeter.

Regulated Voltage: 14.7 – 15.5 V
Charging current : 13 A/5,000 rpm



Regulator/Rectifier

System Inspection

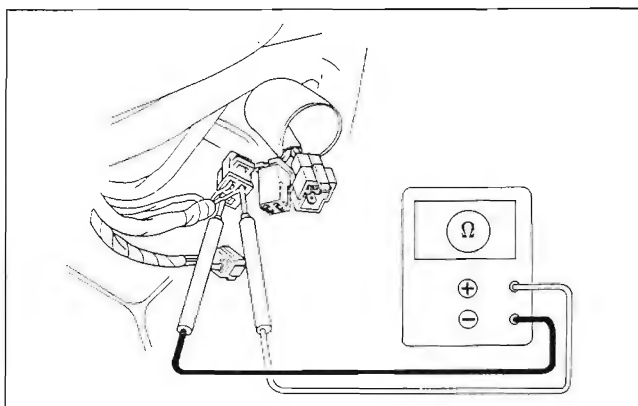
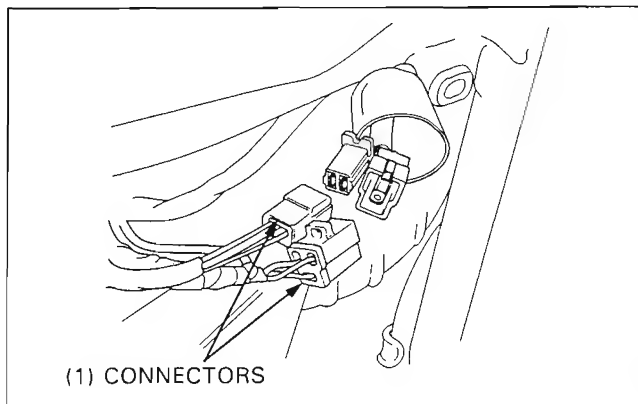
Remove the right side cover (page 2-2).
Disconnect the regulator/rectifier 2P and 3P connectors.

Check the connectors for loose or corroded terminals.

Measure for the following between the connector terminals of the wire harness side.

Item	Terminals	Specification
Battery charging line	Red/White (+) and ground (-)	Battery voltage should register
Charging coil line	Yellow and Yellow	0.2 – 1.2 Ω (20°C/68°F)

If the charging coil line reading is out of specification or if there is continuity between the Yellow, replace the stator.



Unit Inspection

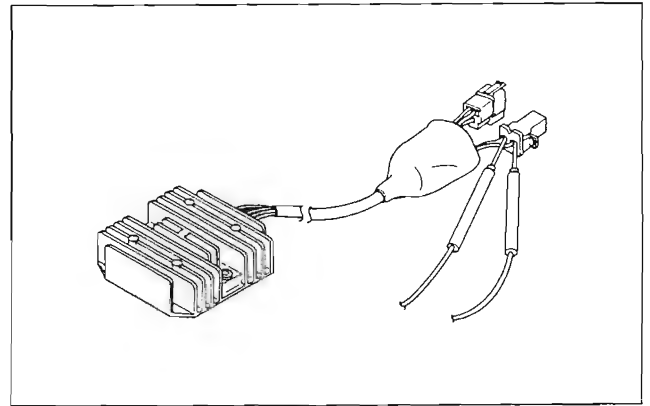
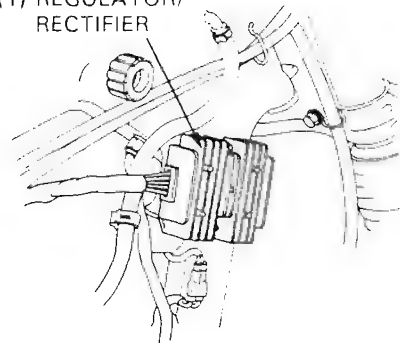
Provided the circuit on the wire harness side is normal and there are no loose connections at the connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

- You'll get false readings if the probes touch your fingers.
 - Use the specified multimeters. Using other equipment may not allow you to obtain the correct results. This is due to the characteristic of semiconductors, which have different values depending on the applied voltage.
- Specific Multimeter:**
- 07411–0020000 (KOWA Digital type)
 - 07308–0020001 (SANWA Analog type)
 - TH–5H (KOWA Analog type)
- Select the following range:
SANWA: $k\Omega$
KOWA: $\times 100$
 - An old battery in the multimeter could cause inaccurate readings. Check the battery if the test results are not as expected.
 - When using the KOWA multimeter, remember value that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if the resistance value between the terminals is abnormal.

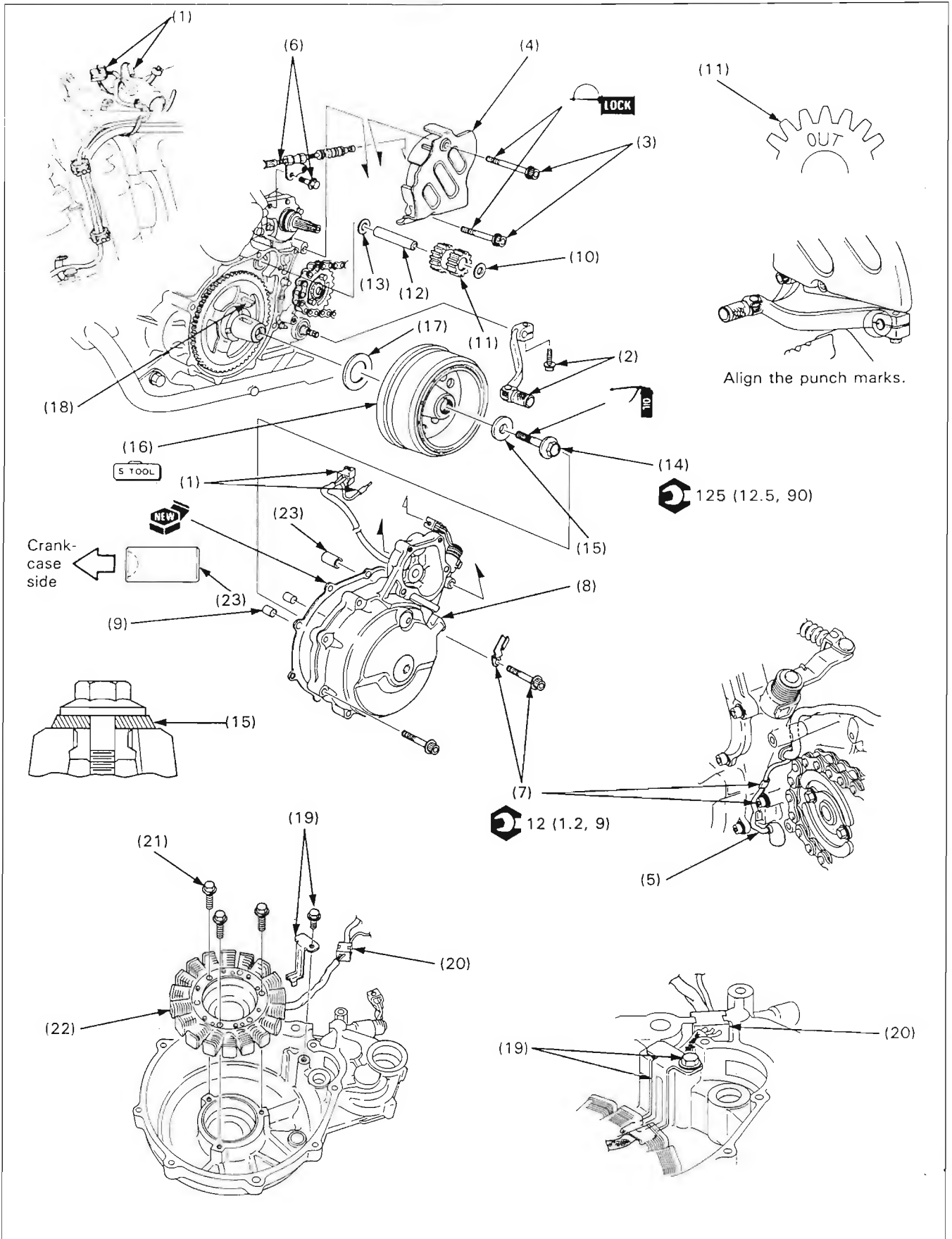
(1) REGULATOR/
RECTIFIER



Unit: Ω

\oplus	Red/ White	Yellow 1	Yellow 2	Yellow 3	Green
\ominus					
Red/ White		∞	∞	∞	∞
Yellow 1	500– 10K		∞	∞	∞
Yellow 2	500– 10K	∞		∞	∞
Yellow 3	500– 10K	∞	∞		∞
Green	700– 15K	500– 10K	500– 10K	500– 10K	

Alternator Removal/Installation



NOTE

- The engine oil will drain out after removal of the left crankcase cover. Set a clean oil pan under the engine and add the recommended oil to the specified level after installation.
- For clutch lifter arm removal/installation, see page 7-4.

Requisite Service

- Engine guard removal/installation (page 2-8)
- Starter gear removal/installation (page 16-5)

Procedure		Q'ty	Remarks
L. Crankcase Cover Removal Order			Installation is in the reverse order of removal.
(1)	Alternator wire connectors	2	
(2)	Gearshift pedal/pinch bolt	1/1	
(3)	Drive sprocket cover bolt	2	
(4)	Drive sprocket cover	1	
(5)	Neutral switch wire terminal	1	
(6)	Clutch cable/bolt	1/1	
(7)	Left crankcase cover bolt/clamp	7/1	
(8)	Left crankcase cover assembly	1	Remove the gasket from the engine.
(9)	Dowel pin	2	
Flywheel Removal Order			Installation is in the reverse order of removal.
(10)	Washer	1	
(11)	Starter drive gear	1	At installation, Install with the "OUT" mark facing out.
(12)	Drive gear shaft	1	
(13)	Washer	1	
(14)	Alternator rotor bolt	1	Use flywheel holder (07725-0040000). At installation, wipe all oil off the crankshaft and from within the taped hole in the flywheel.
(15)	Washer	1	
(16)	Flywheel	1	Use rotor puller (07733-0020001).
(17)	Washer	1	
(18)	Woodruff key	1	
L. Crankcase Cover Disassembly Order			Assembly is in the reverse order of disassembly.
(19)	Wire clamp bolt/clamp	1/1	
(20)	Wire grommet	1	
(21)	Stator mounting bolt	3	
(22)	Stator assembly	1	
(23)	Clutch lifter piece	1	At Installation, Install with concave side facing the clutch lifter rod.

MEMO

15. Ignition System

Service Information	15-1	Ignition Coil	15-5
System Location	15-2	Pulse Generator	15-6
Troubleshooting	15-3	Ignition Timing	15-6
System Inspection	15-5	Pulse Generator Removal/Installation	15-8

Service Information

⚠ WARNING

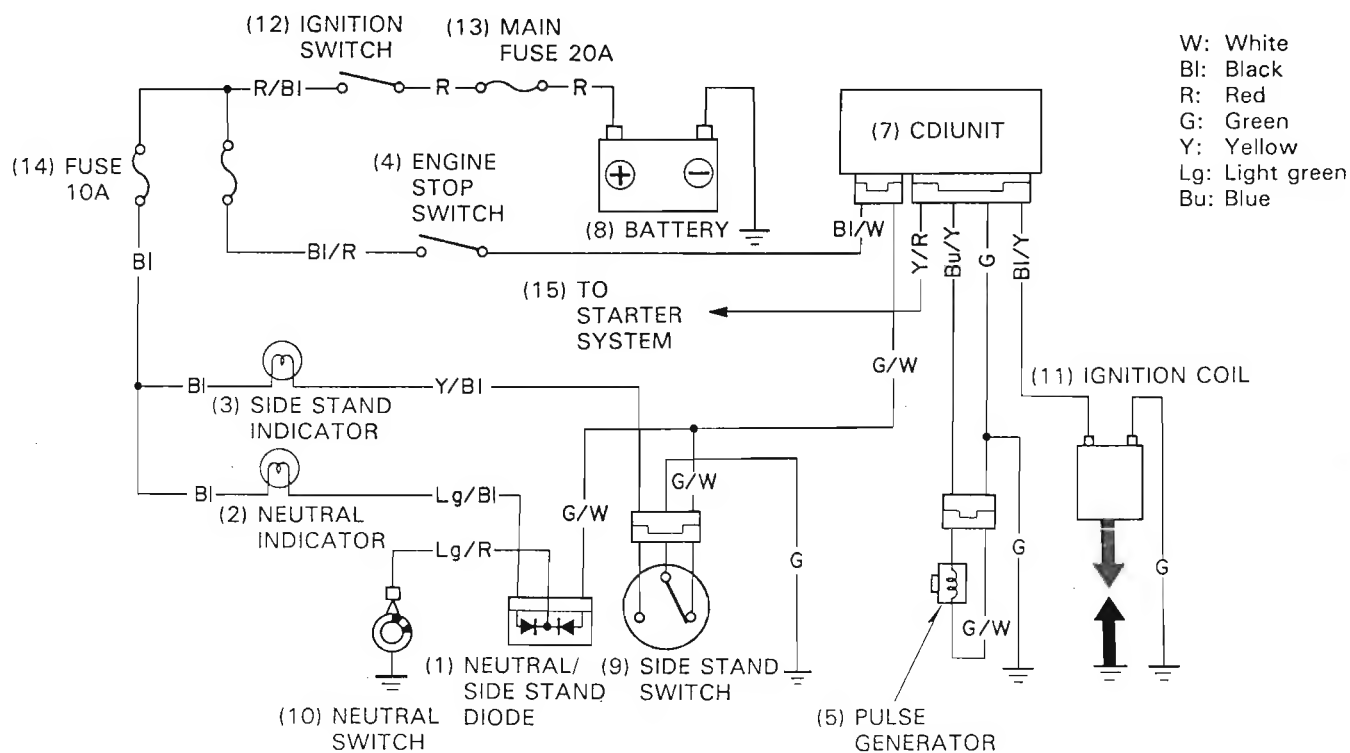
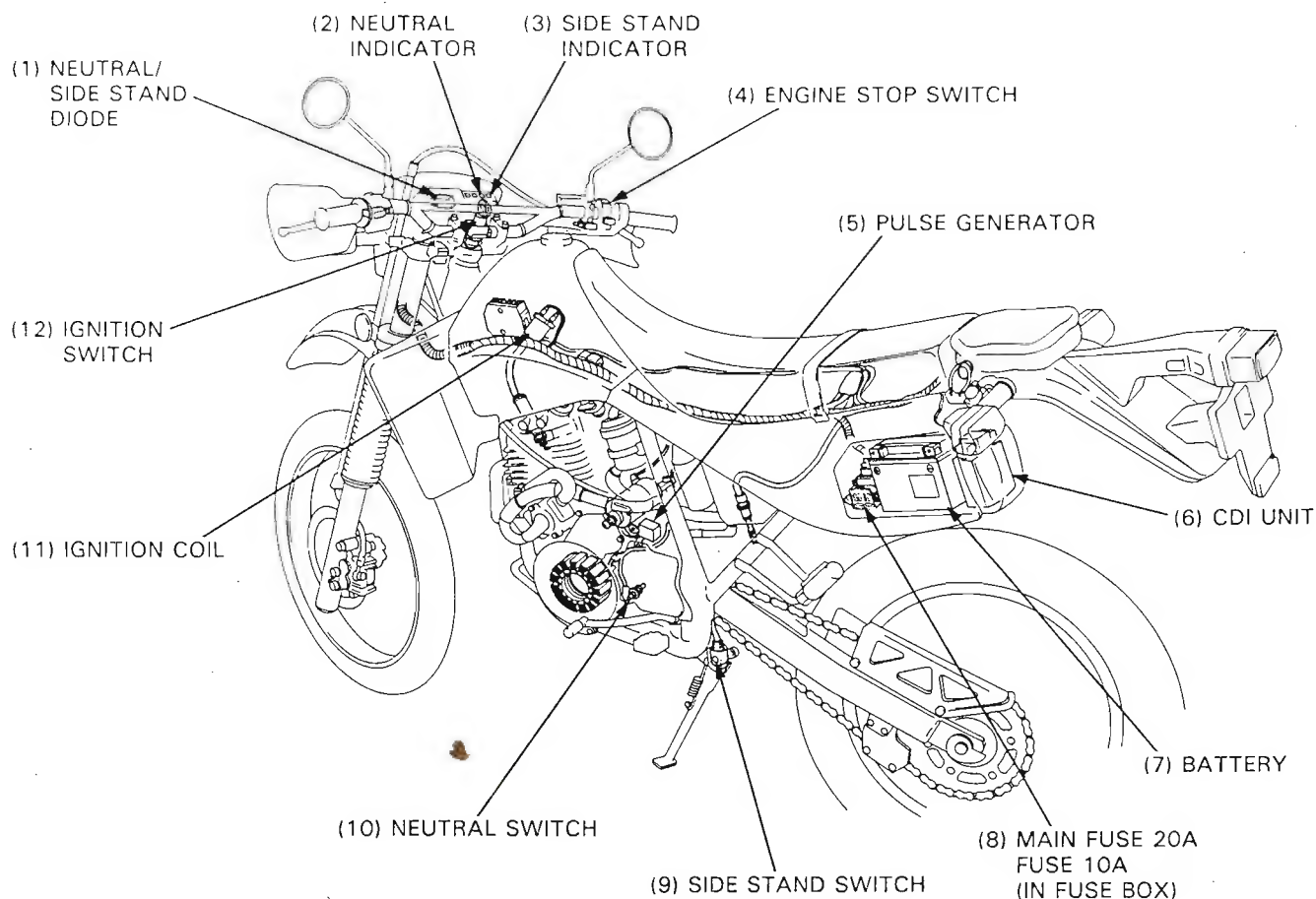
- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

CAUTION

- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 15-3).
- The CDI unit may be damaged if dropped. Also, if the connector is disconnected when current is present, the excessive voltage may damage the unit. Always turn off the ignition switch before servicing.
- Ignition timing cannot be adjusted since the CDI unit is non-adjustable. If ignition timing is incorrect, check the system components and replace any faulty parts.
- A faulty ignition system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Use spark plugs of the correct heat range. Using spark plugs with an incorrect heat range can damage the engine. Refer to section 2 of the Common Service Manual.
- For neutral switch inspection, refer to section 25 of the Common Service Manual. For switch location, see page 15-2 of this manual (System Location).
- For side stand inspection, refer to section 25 of the Common Service Manual.
- For alternator removal and installation, see section 14.
- For engine stop switch and ignition switch inspection, check for continuity chart of the Wiring Diagram, page 18-1. Disconnect the ignition and engine stop switch connectors inside the front visor (page 1-21).
- For side stand inhibitor system instructions, see page 15-4 "NOTE" of the troubleshooting.

System Location

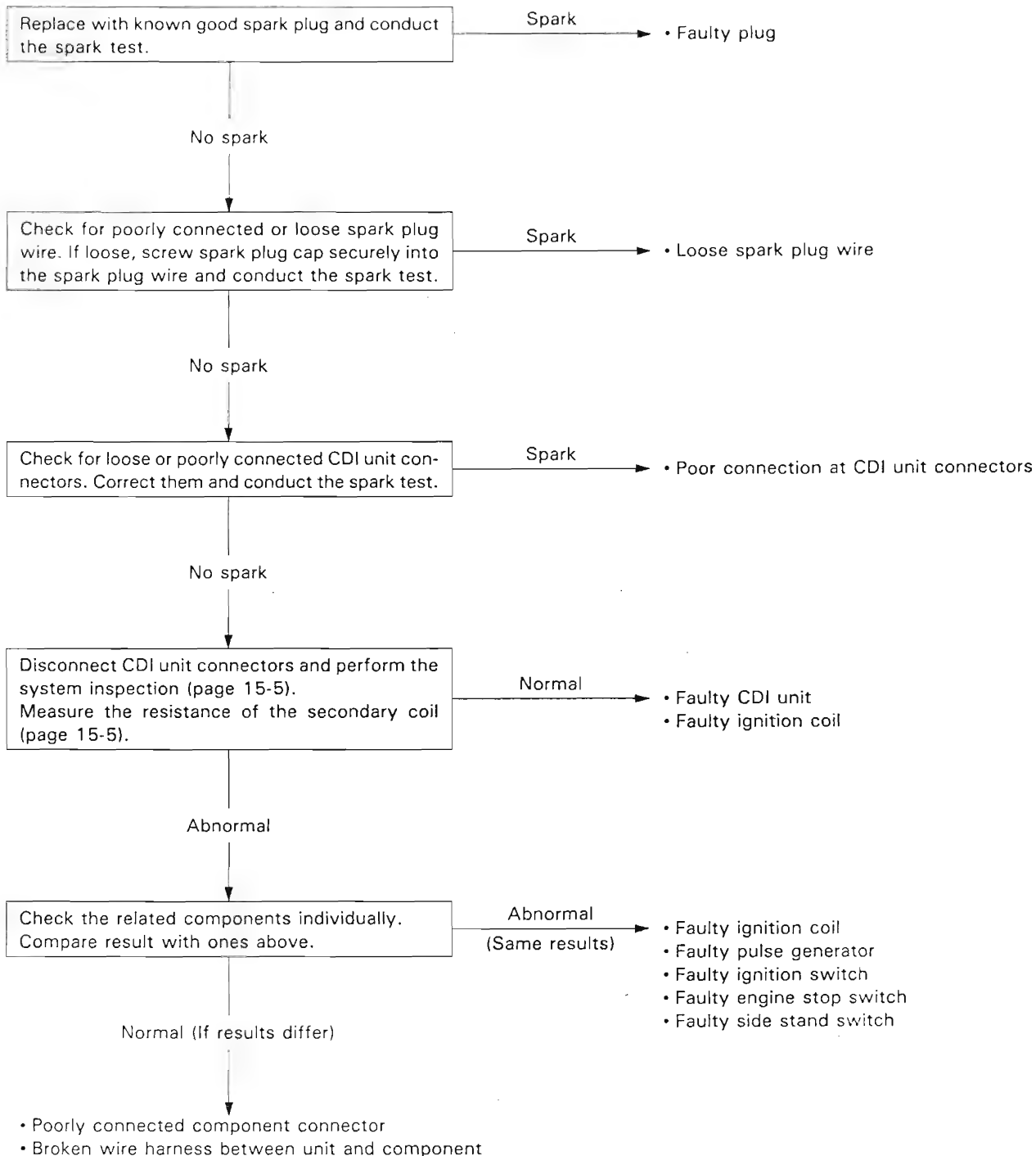


Troubleshooting

⚠ WARNING

- When performing a spark test, keep open flames or sparks away from the work area.

No spark at plug

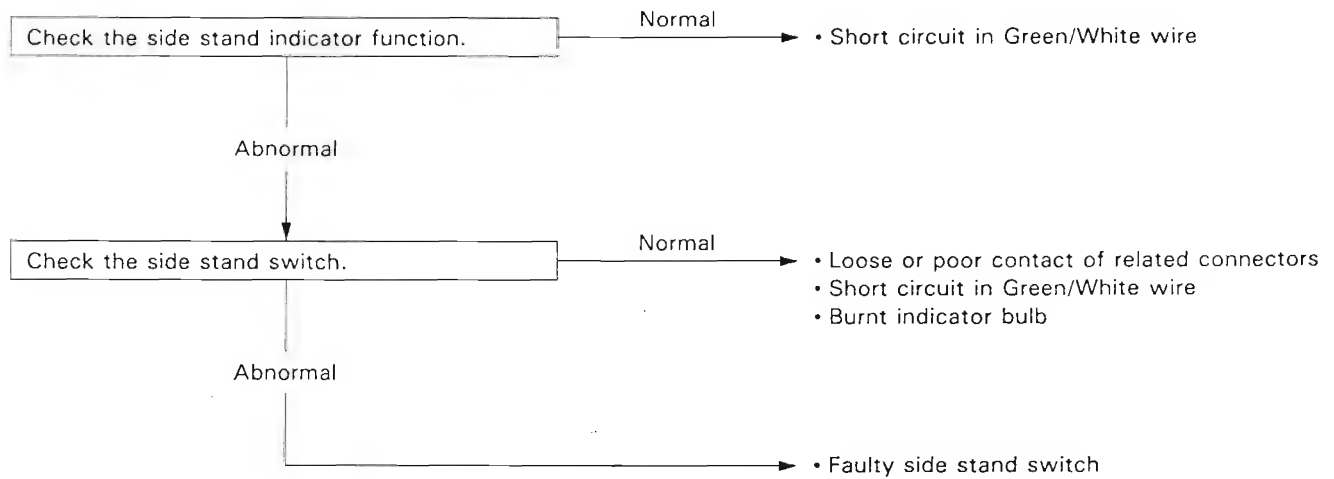


Engine Starts, But Side Stand Switch Does Not Function

NOTE

The side stand switch should function as follows:

- When the transmission is shifted into a gear from neutral with the side stand down, the ignition shuts off and the engine stops.
- When in neutral, the neutral switch line of the CDI unit is connected to ground via the side stand switch. When the side stand is up, the side stand switch line of the CDI unit passes to ground via the side stand switch. The CDI unit monitors neutral switch line and side stand switch line, and provides spark only when one or both of those lines is connected to ground via the neutral switch or the side stand switch.



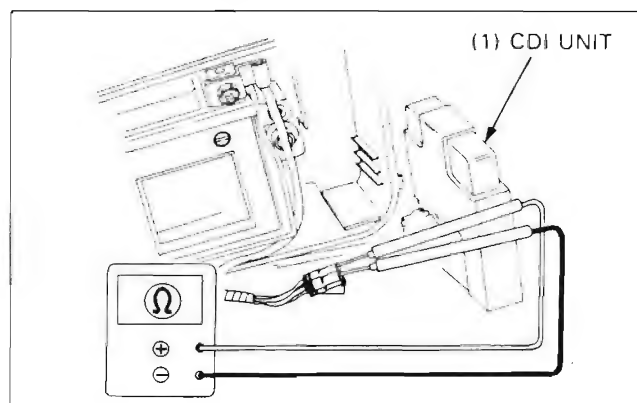
System Inspection

NOTE

- Check the system components and lines step-by-step according to the troubleshooting chart on pages 15-3, 4.

Remove the battery holder (page 14-4).

Disconnect the connector from the CDI unit and conduct these tests at the connector.



Item	Terminals	Standard (20°C/68°F)
Ignition switch/engine stop switch line	Black/White and body ground	When the ignition switch is ON and engine stop switch is at RUN, check for continuity between body ground and ignition switch wire.
Ignition primary coil	Black/Yellow and Green	0.19–0.23 Ω
Pulse generator coil	Blue/Yellow and body ground	423–517 Ω
Neutral switch line	Green/White and body ground	Continuity into neutral. No continuity in any gear except neutral.
Side stand switch line	Green/White and body ground	Continuity with the side stand up. No continuity with the side stand down.
Ground line	Green and body ground	Continuity.

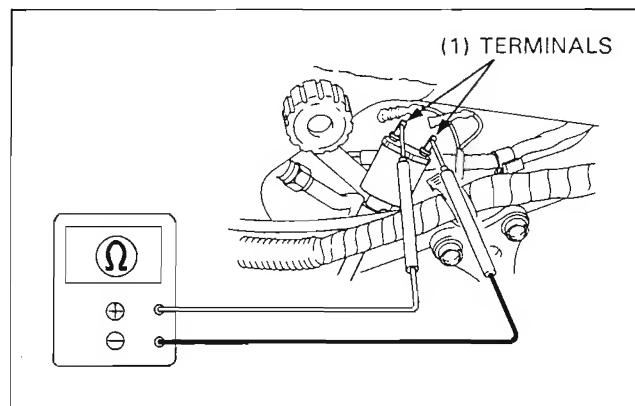
Ignition Coil

Inspection

Remove the fuel tank (page 2-3).

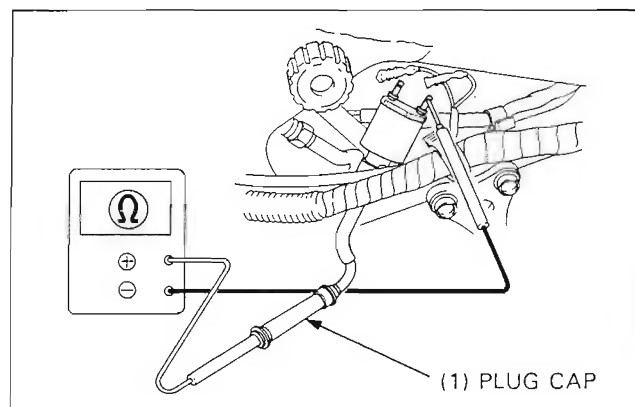
Disconnect the ignition coil primary terminals and measure the primary coil resistance of the ignition coil.

Standard: 0.19–0.23 Ω (20°C/68°F)



Disconnect the spark plug cap from the spark plug and measure the secondary coil resistance between the ignition coil green wire terminal and spark plug cap.

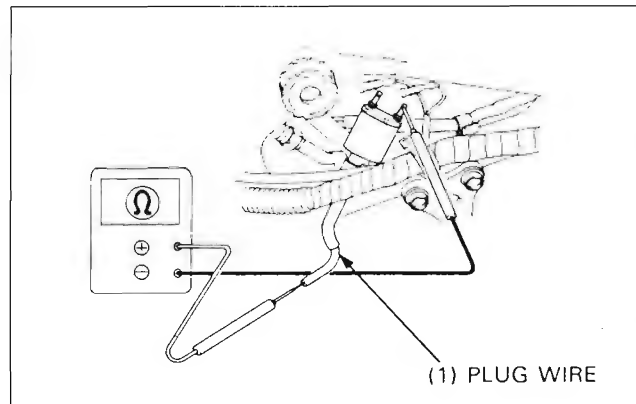
Standard: 6.5–9.7 kΩ (20°C/68°F)



Ignition System

If the resistance is ∞ (open wire), disconnect the spark plug cap and measure the secondary coil resistance as shown.

Standard: 2.8–3.4 k Ω (20°C/68°F)



Pulse Generator

Inspection

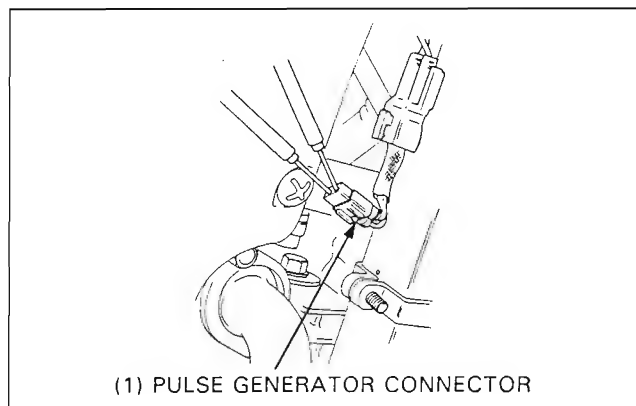
NOTE

- It is not necessary to remove the pulse generator from the engine.

Disconnect the pulse generator 2P connector.

Measure the resistance between the Blue/Yellow and Green/White terminals.

Standard: 423–517 Ω (20°C/68°F)



Ignition Timing

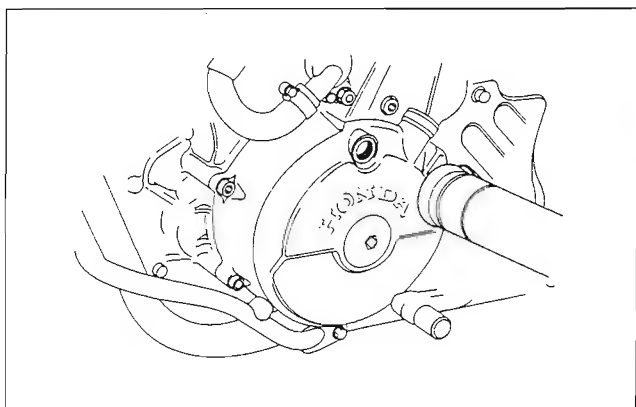
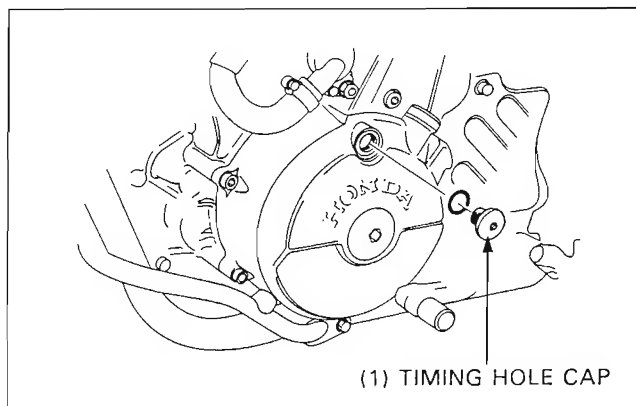
Warm up the engine.

Stop the engine and connect a timing light to the spark plug wire.

NOTE

- Read the operating instructions for the timing light.

Remove the timing hole cap on the left crankcase cover.



⚠ WARNING

- If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

Start the engine and allow it to idle.

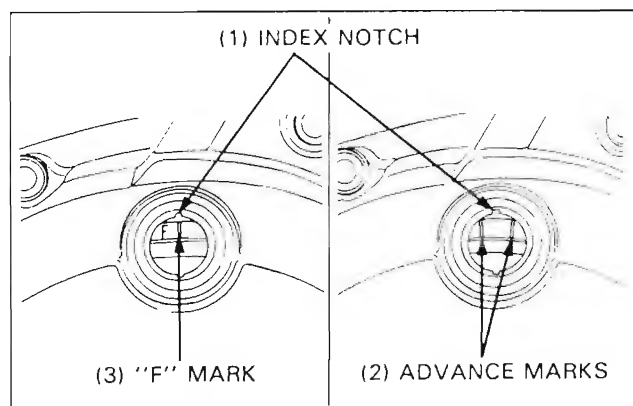
Inspect the ignition timing.

The timing is correct if the "F" mark aligns with the index notch on the crankcase at idle speed.

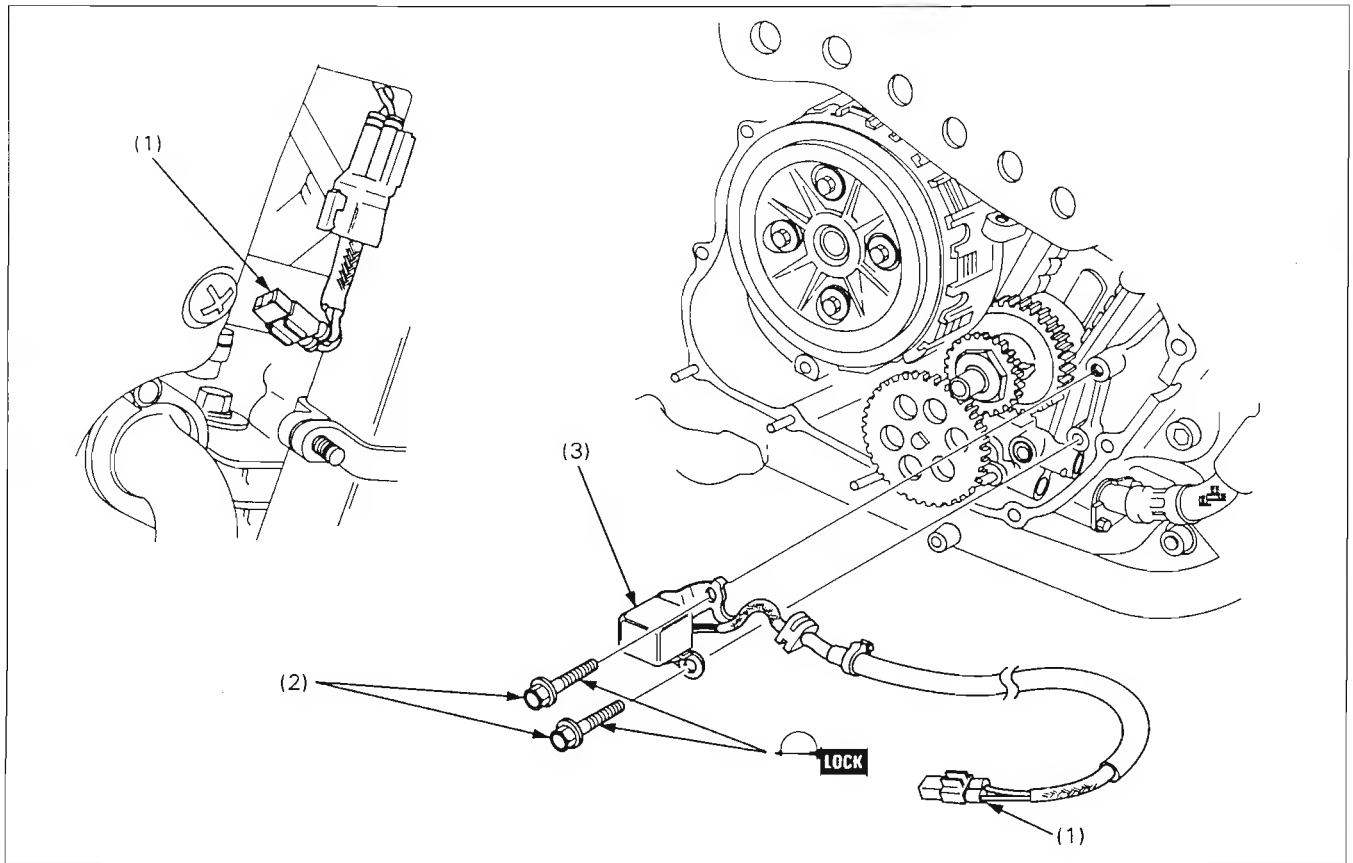
Idle Speed: $1,300 \pm 100$ rpm

Check the "F" mark begins to move when the engine speed reaches the advance start rpm.

At 4,000 rpm, the ignition timing is correct if the index notch is between the to advance marks.



Pulse Generator Removal/Installation



Requisite Service

- Right crankcase cover removal/installation (page 7-2)

Procedure		Q'ty	Remarks
(1)	Removal Order Pulse generator 3P connector	1	Disconnect the 3P connector on the right side of the frame front down tube.
(2)	Pulse generator mounting bolt	2	
(3)	Pulse generator	1	

16. Electric Starter/Starter Clutch

Service Information	16-1	Starter Motor Removal/Installation	16-6
System Location	16-2	Starter Motor Disassembly/Assembly	16-7
Troubleshooting	16-3	Starter Clutch Removal/Installation	16-8
Starter Gear Removal/Installation	16-5		

Service Information

⚠ WARNING

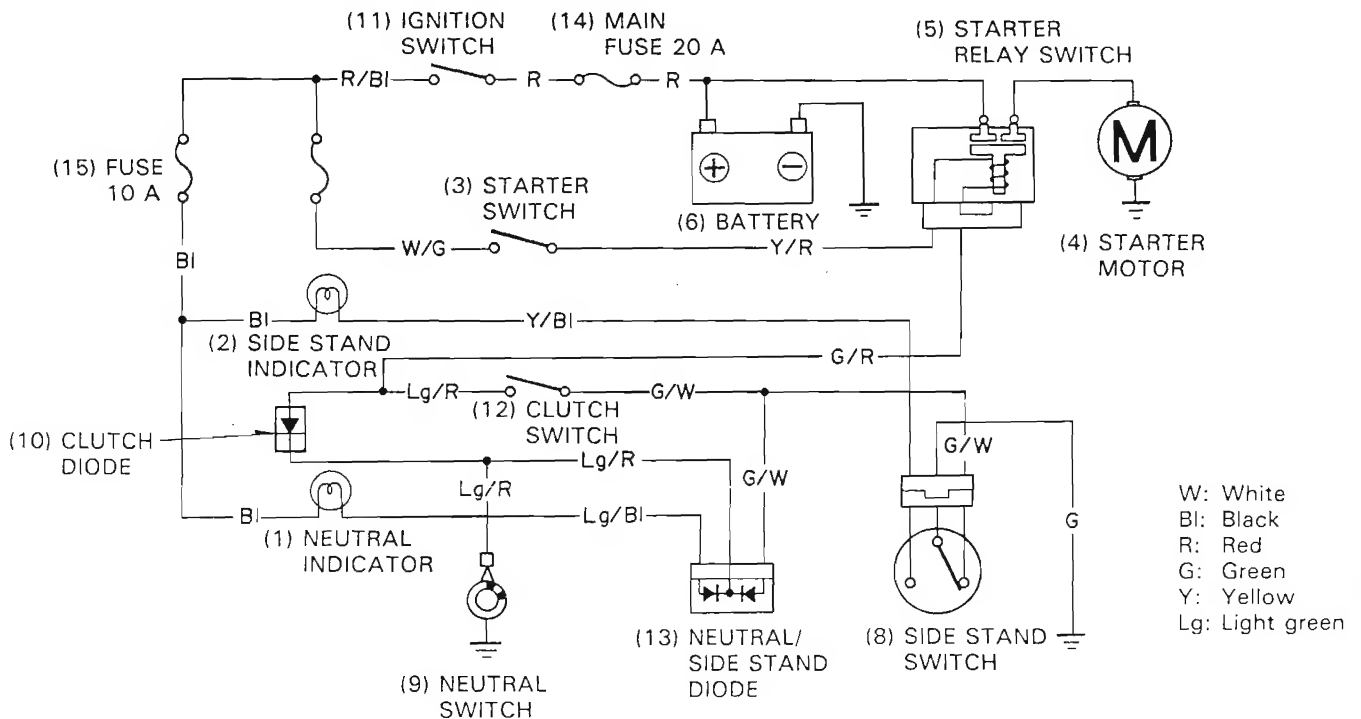
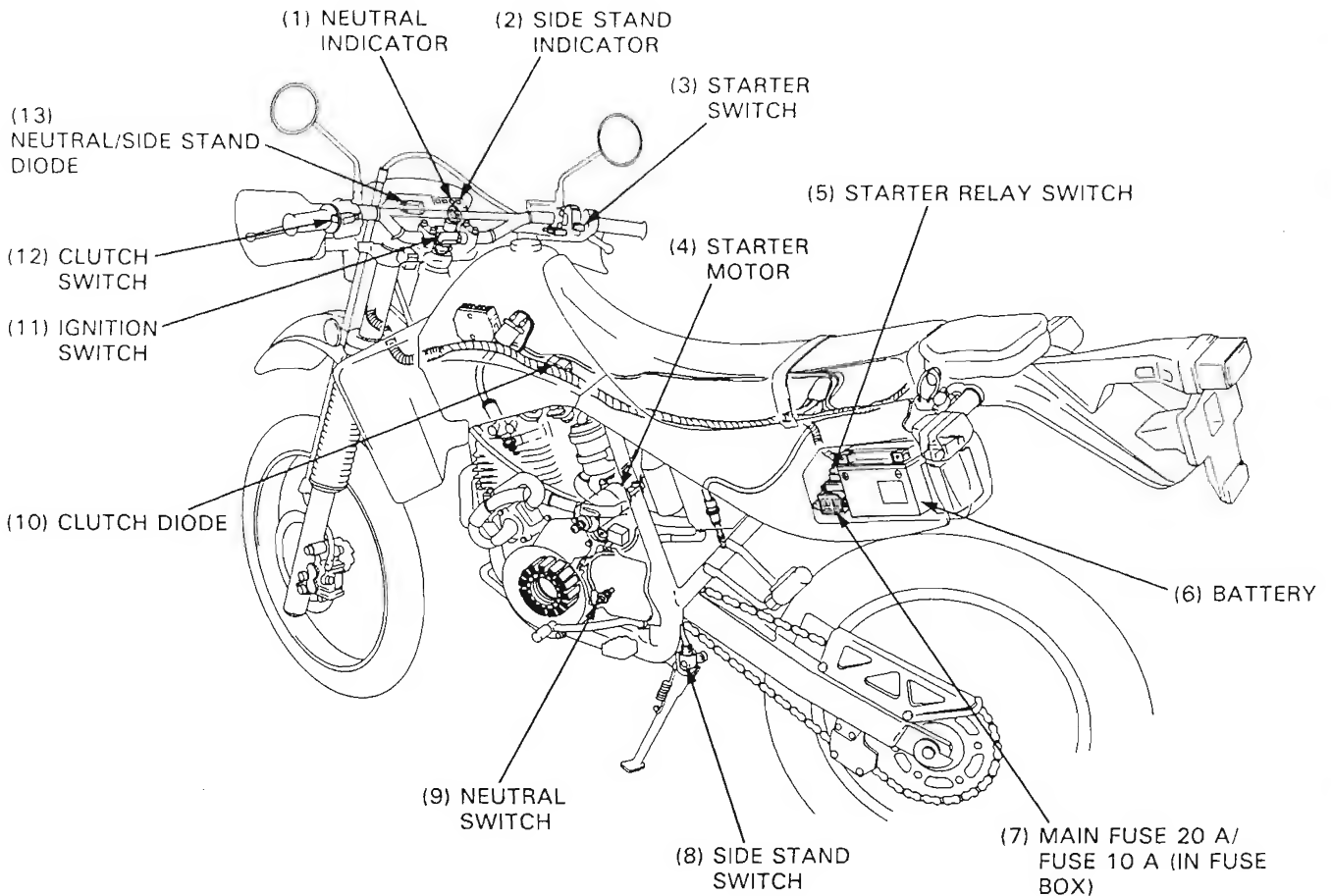
- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.

- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor to turn it while the engine is not cranking over, the starter motor may be damaged.
- For the following component inspections, refer to the pages noted; for the parts locations, see page 16-2 of this manual (System Location).

Clutch switch diode	Section 24 of the Common Service Manual
Starter motor	Section 24 of the Common Service Manual
Starter relay switch	Section 24 of the Common Service Manual ("A" circuit type)
Clutch switch	Section 24 of the Common Service Manual
Neutral switch	Section 25 of the Common Service Manual
Ignition switch	Check for continuity on the continuity chart of the Wiring Diagram, page 18-1. Disconnect the switch connector in the headlight stay (page 1-21) and check it.
Side stand switch	Section 25 of the Common Service Manual.

- Always turn off the ignition switch before disconnecting any electrical component.

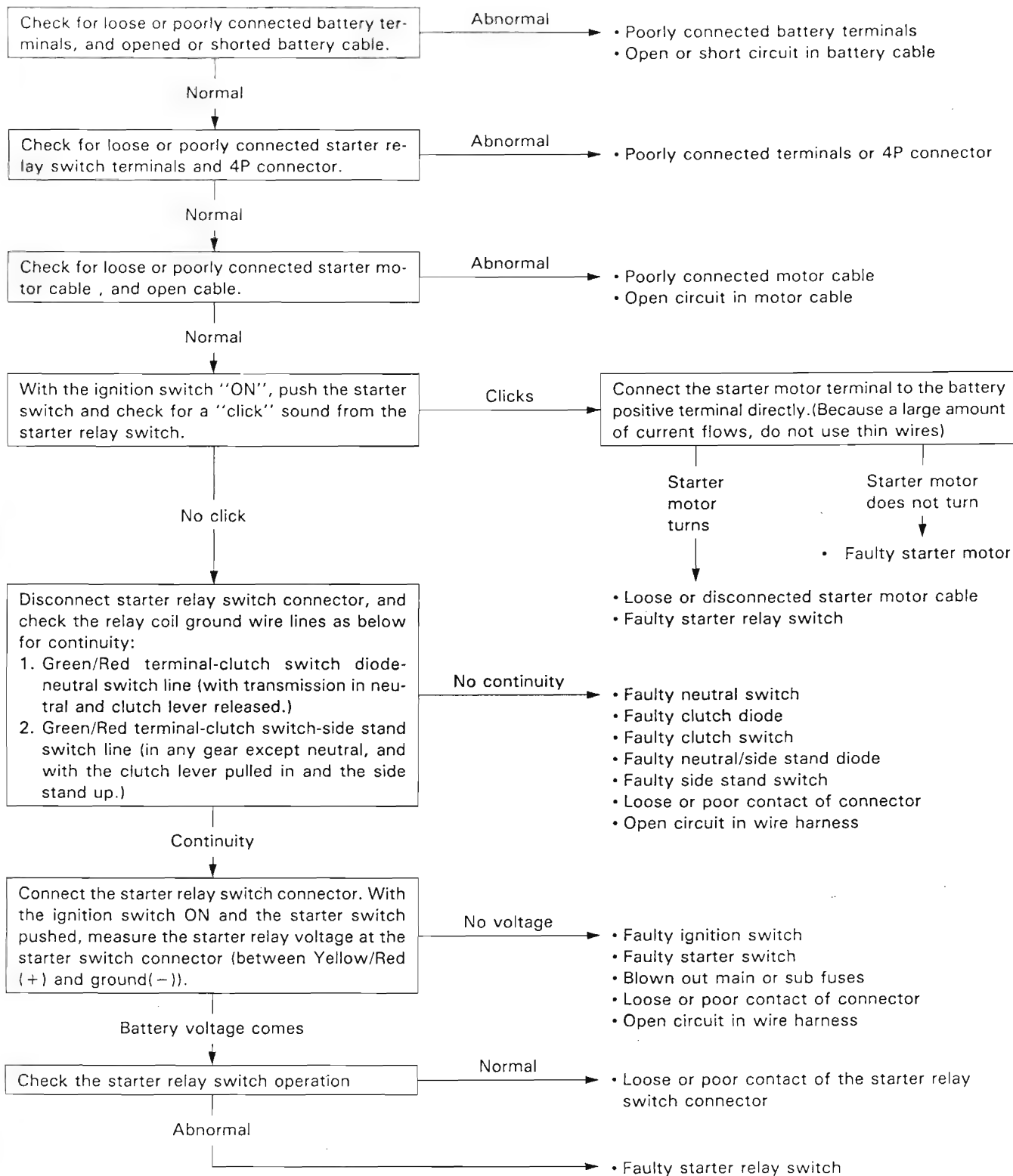
System Location



Troubleshooting

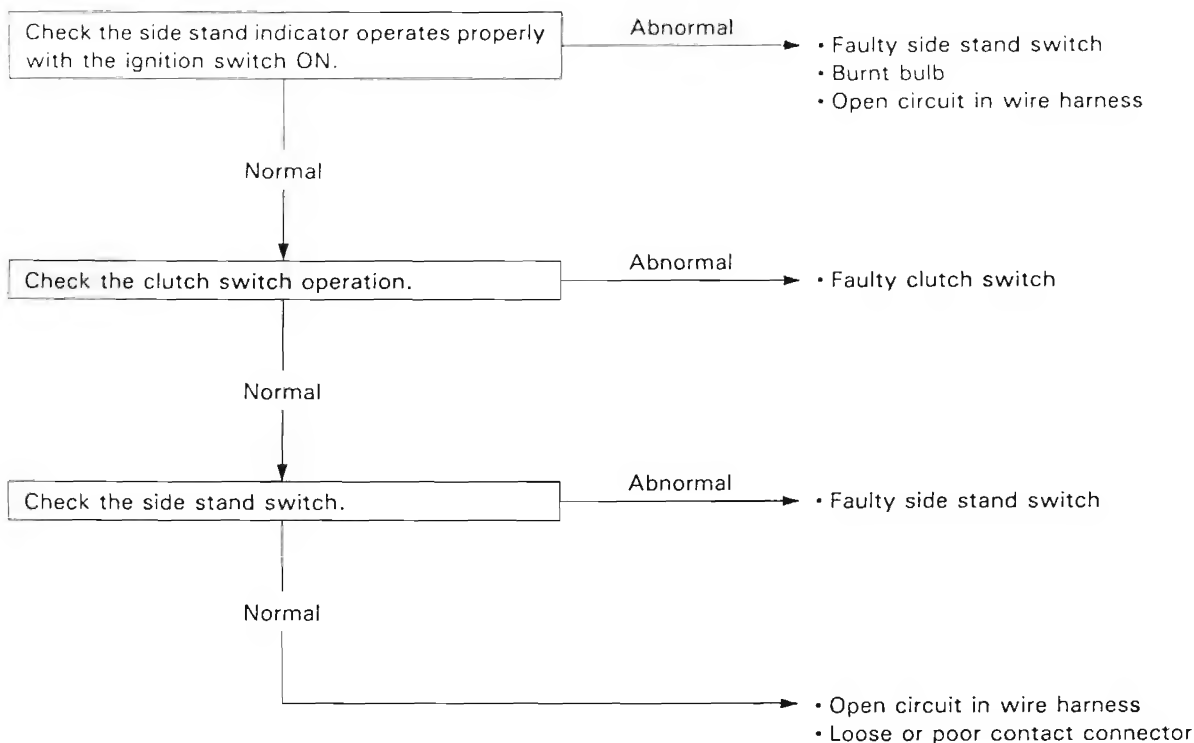
Starter Motor Will Not Turn

- Check for a blown out main or sub fuses before servicing.
- Make sure the battery is fully charged and in good condition.



Electric Starter/Starter Clutch

The starter motor turns when the transmission is in neutral, but does not turn with the transmission in any position except neutral, with the side stand up and the clutch lever pulled in.



Starter Motor Turns Slowly

- Low specific gravity in battery (or dead battery)
- Poorly connected battery terminal cable
- Poorly connected starter motor cable
- Faulty starter motor
- Poorly connected battery ground cable

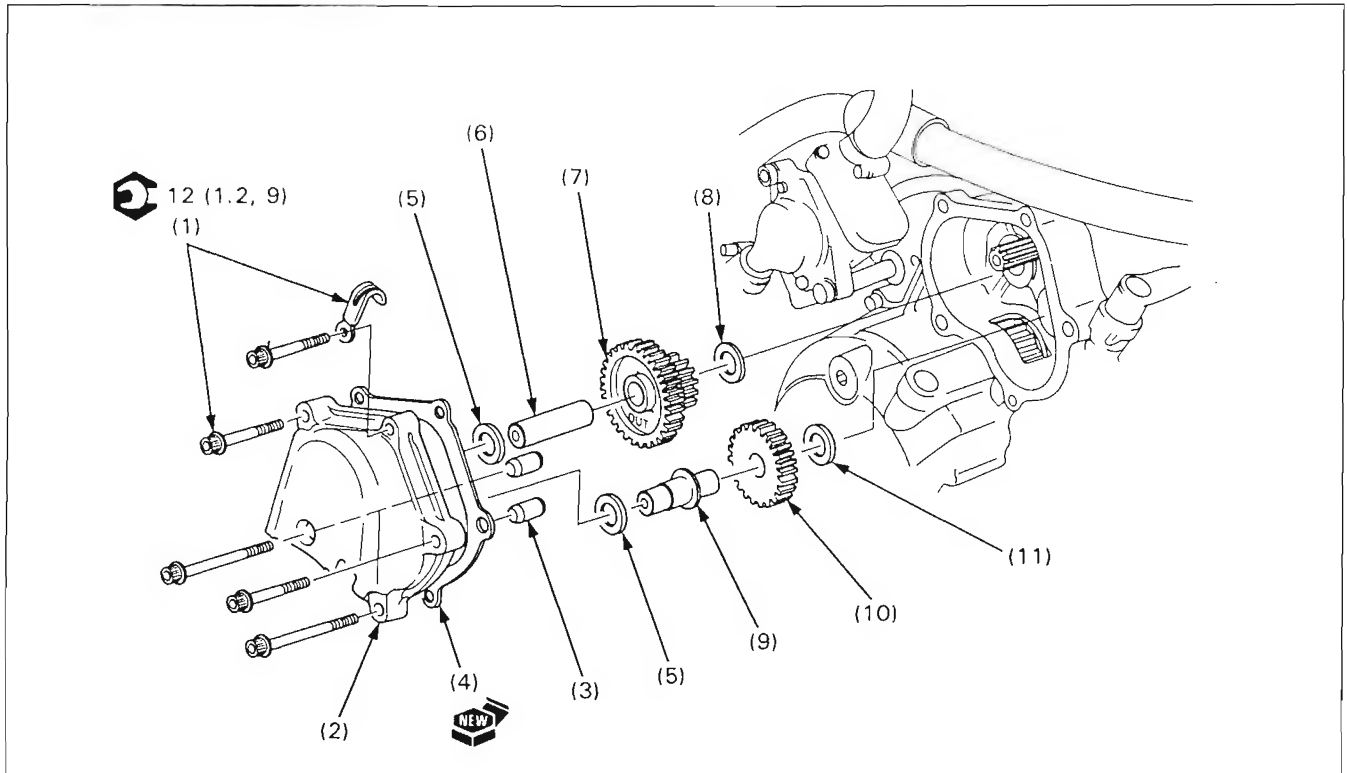
Starter Motor Turns, But Engine Does Not Turn

- Starter motor is running backwards
 - Case assembled improperly
 - Terminals connected improperly
- Faulty starter clutch
- Damaged or faulty starter drive gear

Starter Relay Switch "Clicks", But Engine Does Not Turn Over

- Crankshaft does not turn due to engine problems

Starter Gear Removal/Installation

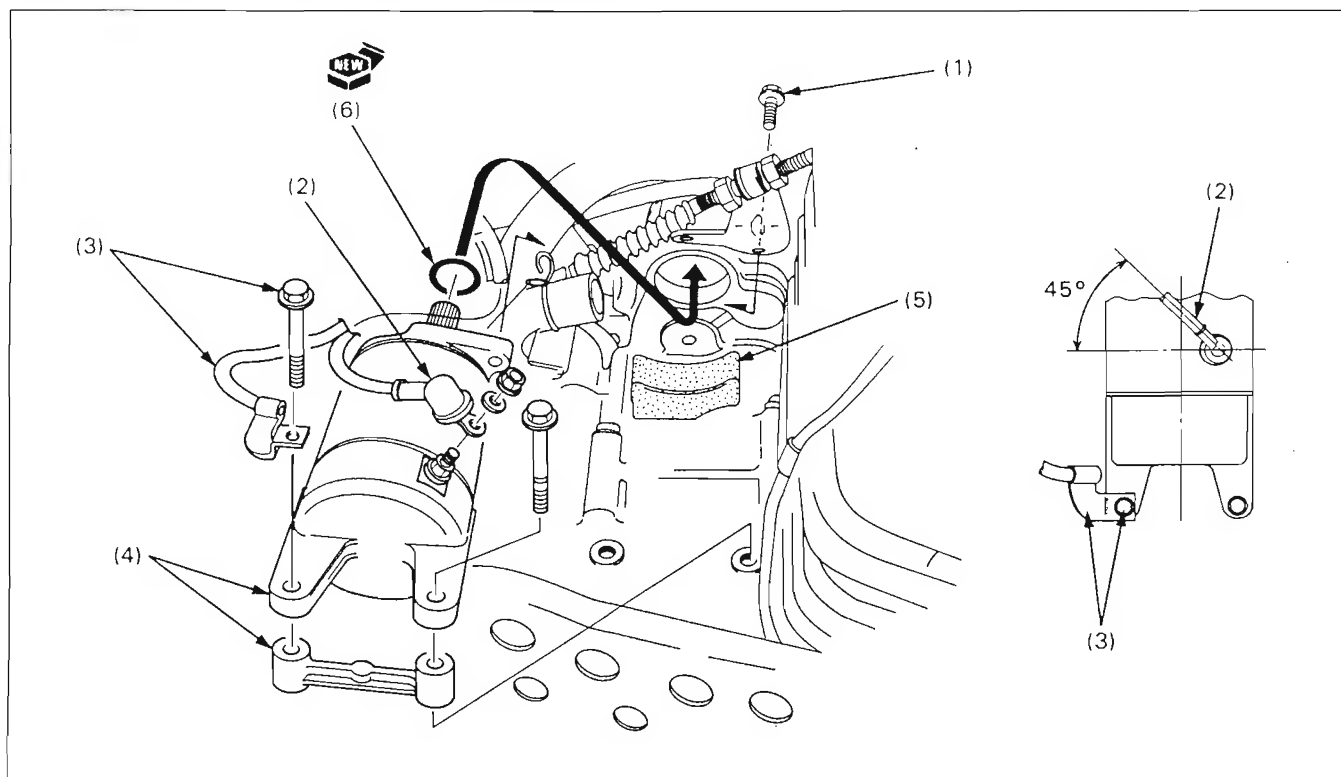


⚠ WARNING

- Turn the ignition switch OFF and remove the negative cable at the battery before servicing the starter motor.

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Starter gear cover bolt/clamp	5/1	
(2)	Starter gear cover	1	
(3)	Dowel pin	2	
(4)	Gasket	1	
(5)	Washer	2	
(6)	Reduction gear shaft	1	
(7)	Reduction gear	1	Install the reduction gear with the "OUT" mark facing out.
(8)	Washer	1	Be careful not to drop it into the crankcase.
(9)	Idle gear shaft	1	
(10)	Idle gear	1	
(11)	Washer	1	Be careful not to drop it into the crankcase.

Starter Motor Removal/Installation



⚠ WARNING

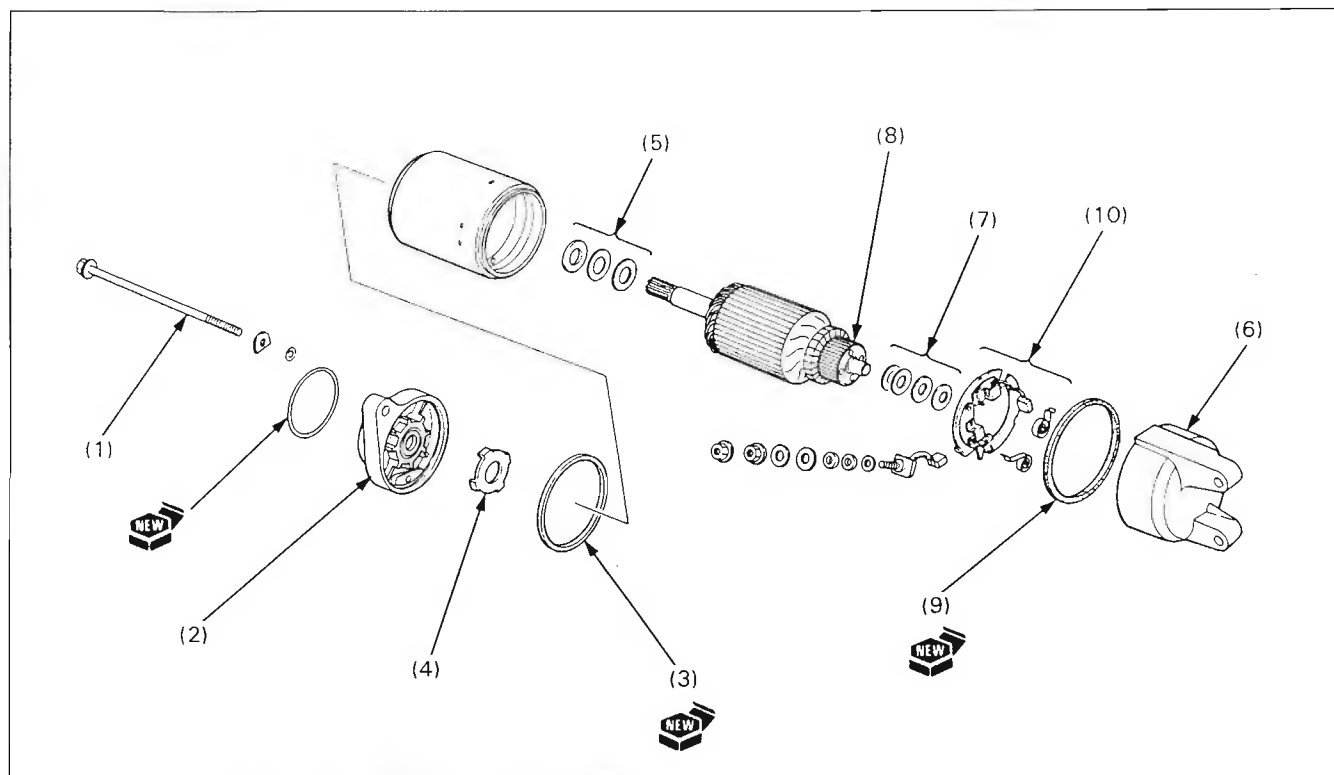
- Turn the ignition switch OFF and remove the negative cable at the battery before servicing the starter motor.

Requisite Service

- Carburetor removal/installation (page 5-4)
- Starter gear removal/installation (page 16-5)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Clutch cable bracket bolt	1	Remove the rubber cap and remove the nut/washer.
(2)	Starter motor cable	1	
(3)	Starter motor mounting bolt/ground cable	2/1	
(4)	Starter motor /spacer	1/1	
(5)	Mounting rubber	1	
(6)	O-ring	1	

Starter Motor Disassembly/Assembly



NOTE

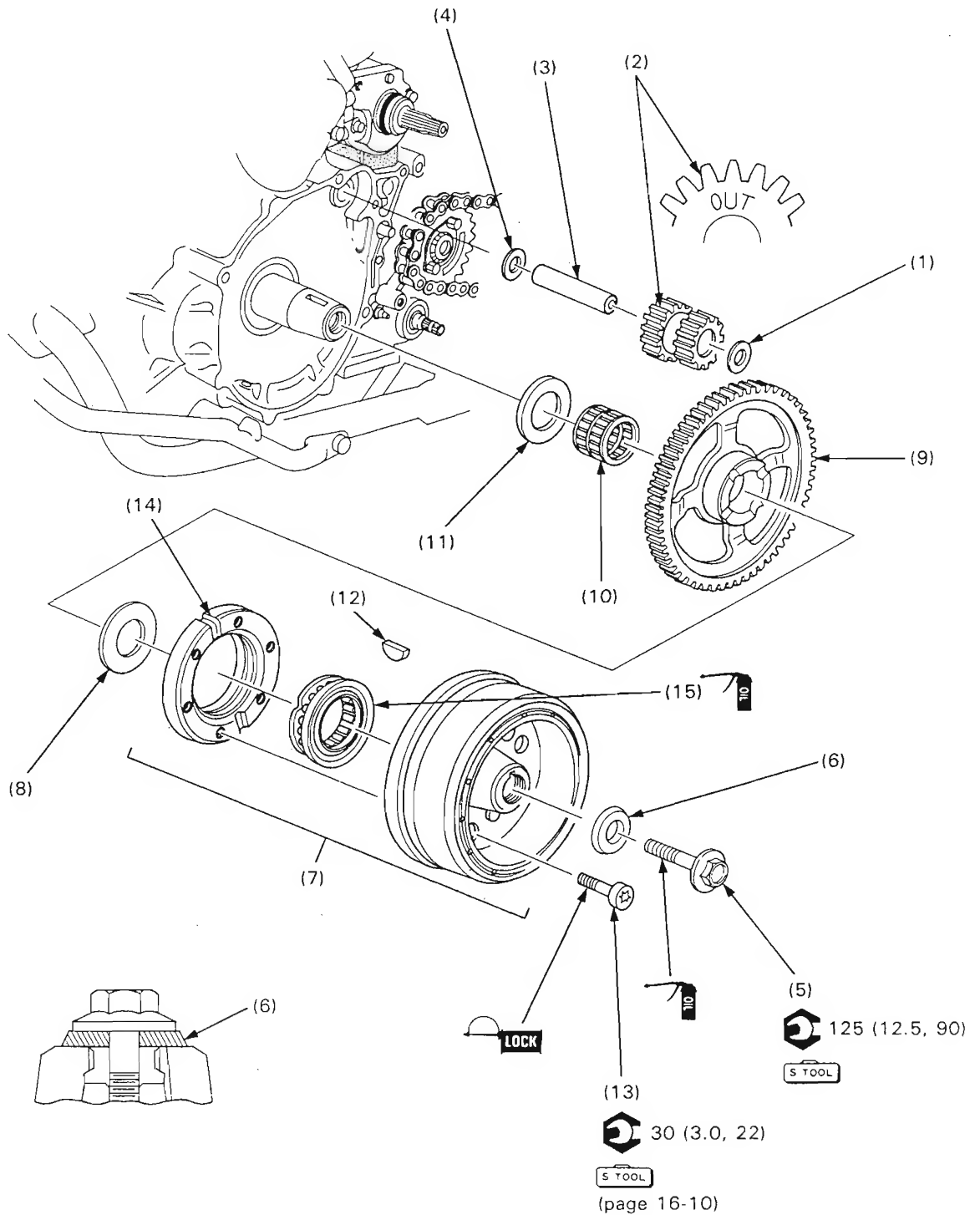
- Note the location and number of the thrust washers in the disassembly order.

Requisite Service

- Starter motor removal/installation (page 16-6).

Procedure		Q'ty	Remarks
Disassembly Order			Assembly is in the reverse order of disassembly.
(1)	Case mounting bolt	2	
(2)	Front cover	1	
(3)	O-ring	1	
(4)	Lock washer	1	
(5)	Thrust washer	—	Note the location and number of thrust washers.
(6)	Rear cover	1	
(7)	Thrust washer	—	Note the location and number of thrust washers.
(8)	Armature	1	
(9)	O-ring	2	
(10)	Brush holder assembly	1	

Starter Clutch Removal/Installation



NOTE

- The engine oil will drain out after removal of the left crankcase cover. Set a clean oil pan under the engine and add the recommended oil to the specified level after the installation.

Requisite Service

- Alternator removal (page 14-8)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Washer	1	At installation, install with the "OUT" mark facing out.
(2)	Starter drive gear	1	
(3)	Drive gear shaft	1	
(4)	Washer	1	
(5)	Alternator rotor bolt	1	Use flywheel holder (07725-0040000).
(6)	Washer	1	Use rotor puller (07733-0020001).
(7)	Flywheel assembly	1	
(8)	Washer	1	
(9)	Starter driven gear	1	
(10)	Needle bearing	1	
(11)	Washer	1	
(12)	Woodruff key	1	
(13)	Starter one-way clutch bolt (Torx T-40 bolt)	6	Disassembly/Assembly (page 16-10).
(14)	Starter clutch housing	1	
(15)	Starter one-way clutch roller	1	

Starter One-way Clutch bolt

Removal

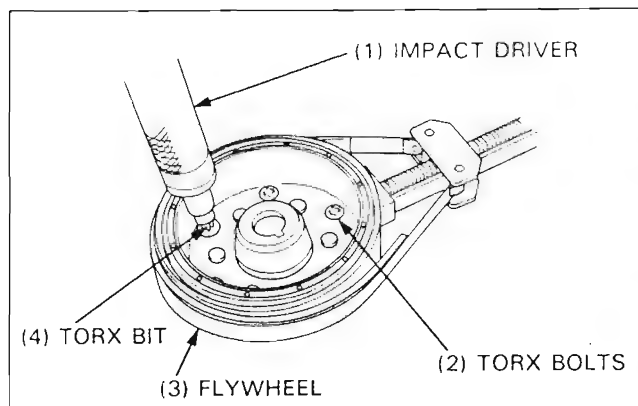
Remove the Torx bolts using a Torx bit and impact driver.



Torx bit

07703-0010100

Remove the one-way clutch housing and clutch roller.



Installation

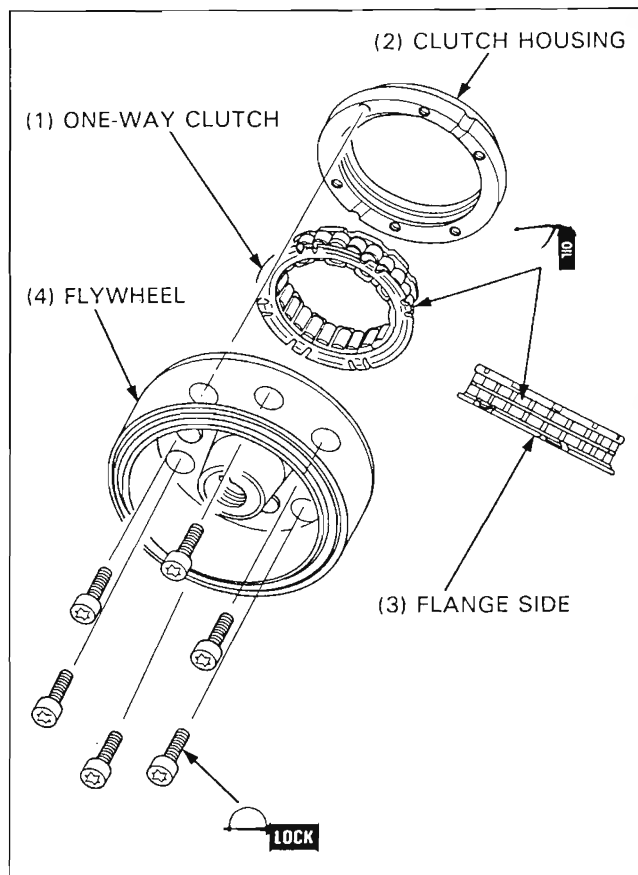
Apply clean engine oil to the one-way clutch roller surfaces.

CAUTION

- Do not apply molybdenum disulfide oil to the one-way clutch sliding surfaces.

Install the one-way clutch into the clutch housing, with the flange side facing to the flywheel.

Install the one-way clutch assembly onto the flywheel.



Hold the flywheel with the flywheel holder. Clean and apply a locking agent to the Torx bolt threads and tighten to the specified torque.

Torque: 30 N·m (3.0 kg·m, 22 ft·lb)

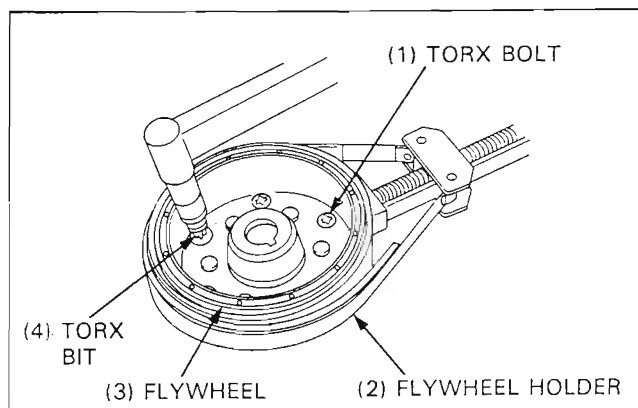


Flywheel holder

07725-0040000

Torx bit

07703-0010100



17. Lights/Meters/Switches

Service Information	17-1	Headlight Stay Removal/Installation	17-5
System Location	17-2	Meter Removal/Installation	17-6
Headlight Removal/Installation	17-3	Ignition Switch Removal/Installation	17-7
Tail/Brake Light	17-4	Neutral Switch	17-8
Turn Signal	17-4	Side Stand Switch	17-8
Indicator/Meter Bulb Replacement	17-4		

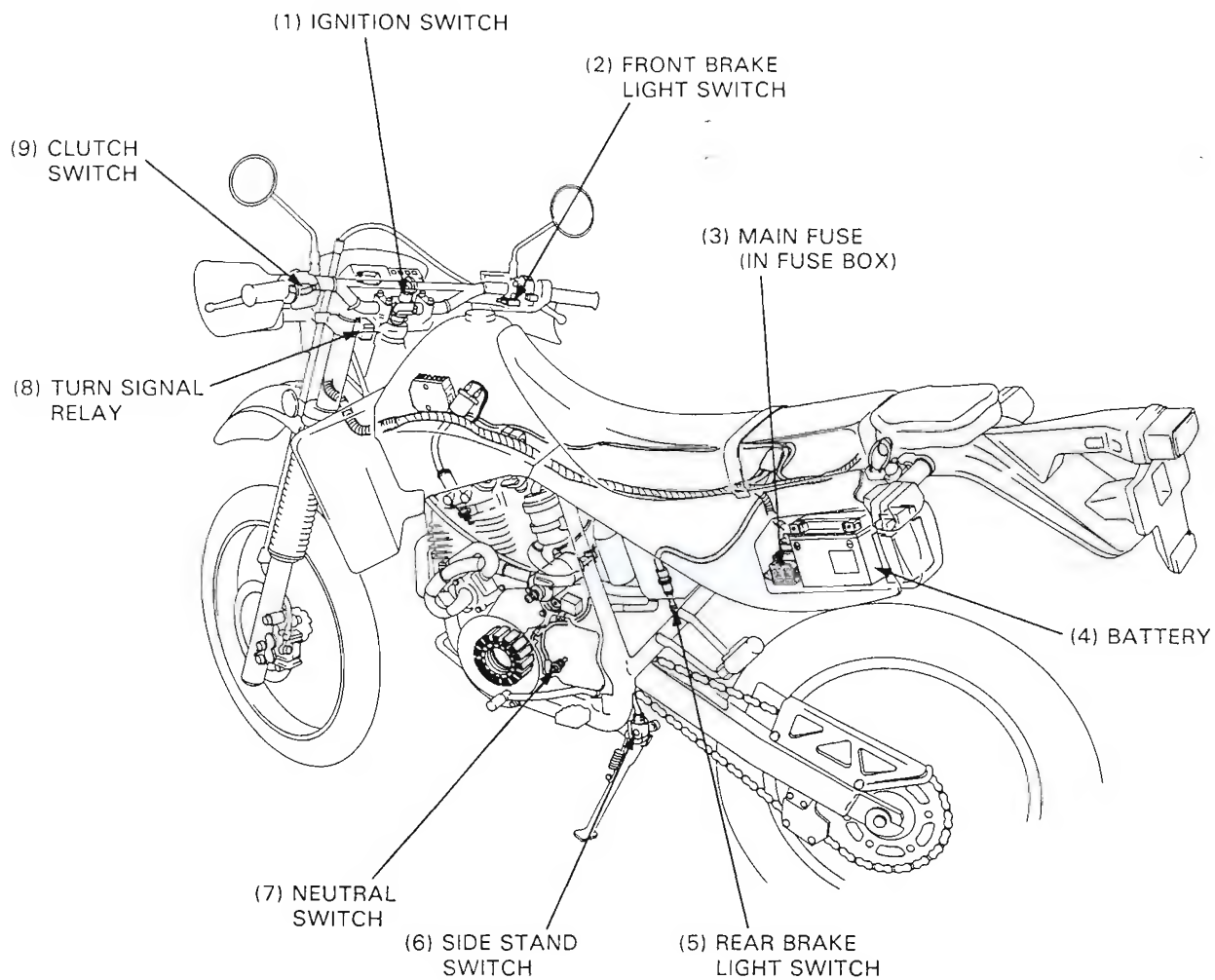
Service Information

⚠ WARNING

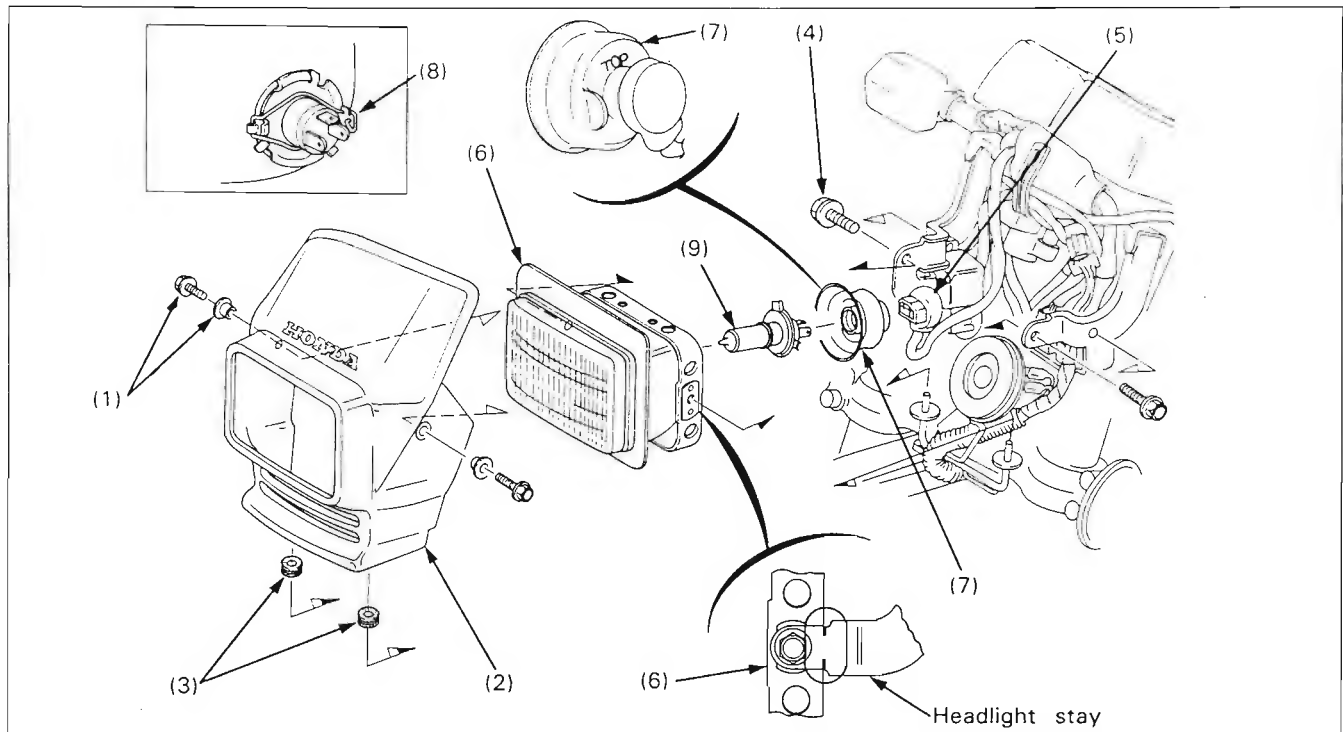
- Halogen headlight bulb becomes very hot while the headlight is ON, and remain hot for a while after it is turned OFF. Be sure to let it cool down before servicing.
- Note the following when replacing the halogen headlight bulb.
 - Wear clean gloves while replacing the bulb. Do not put fingerprints on the headlight bulb, as they may create hot spots and cause it to break.
 - If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
 - Be sure to install the dust cover after replacing the bulb.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
For the following component locations, see page 17-2 of this manual (System Location); for inspections, refer to the applicable pages.

Component	Inspection method	Remarks
Clutch switch	Section 25 of the Common Service Manual	
Front brake light switch	Section 25 of the Common Service Manual	
Horn	Section 25 of the Common Service Manual	
Handlebar switches	Check for continuity on the continuity chart of the Wiring Diagram, page 18-1.	Switch connectors are located inside the front visor (page 1-21).
Ignition switch		
Neutral switch	Section 25 of the Common Service Manual	
Rear brake light switch	Section 25 of the Common Service Manual	
Turn signal lights	Section 25 of the Common Service Manual	2 terminal relay.

System Location



Headlight Removal/Installation



WARNING

- Halogen headlight bulb becomes very hot while the headlight is ON, and remain hot for a while after it is turned OFF. Be sure to let it cool down before servicing.

CAUTION

- Wear clean gloves while replacing the bulb. Do not put fingerprints on the headlight bulb, as they may create hot spots and cause it to break.
- If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
- Be sure to install the dust cover after replacing the bulb.

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Bolt/setting collar	2/2	
(2)	Front visor	1	
(3)	Grommet	2	
(4)	Headlight mounting bolt	2	
(5)	Headlight bulb socket	1	
(6)	Headlight assembly	1	At installation, align the index marks on the headlight stay and headlight assembly end.
(7)	Dust cover	1	Install with the "TOP" mark facing up.
(8)	Bulb retainer	1	
(9)	Headlight bulb	1	

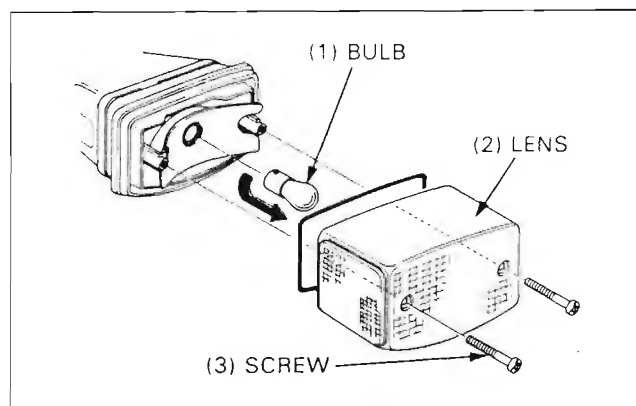
Tail/Brake Light

Bulb Replacement

Remove the mounting screws and tail/brake light lens.

Remove the bulb from the socket by turning it counter-clockwise and replace with a new one.

Installation is in the reverse order of removal.



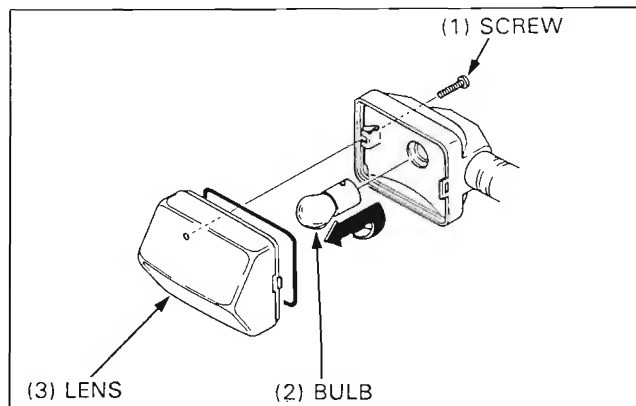
Turn Signal

Bulb Replacement

Remove the mounting screw and turn signal lens.

Remove the bulb from the socket by turning it counter-clockwise and replace with a new one.

Installation is in the reverse order of removal.

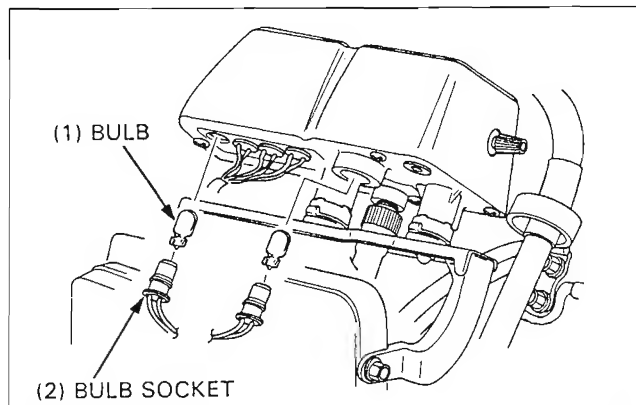


Indicator/Meter Bulb Replacement

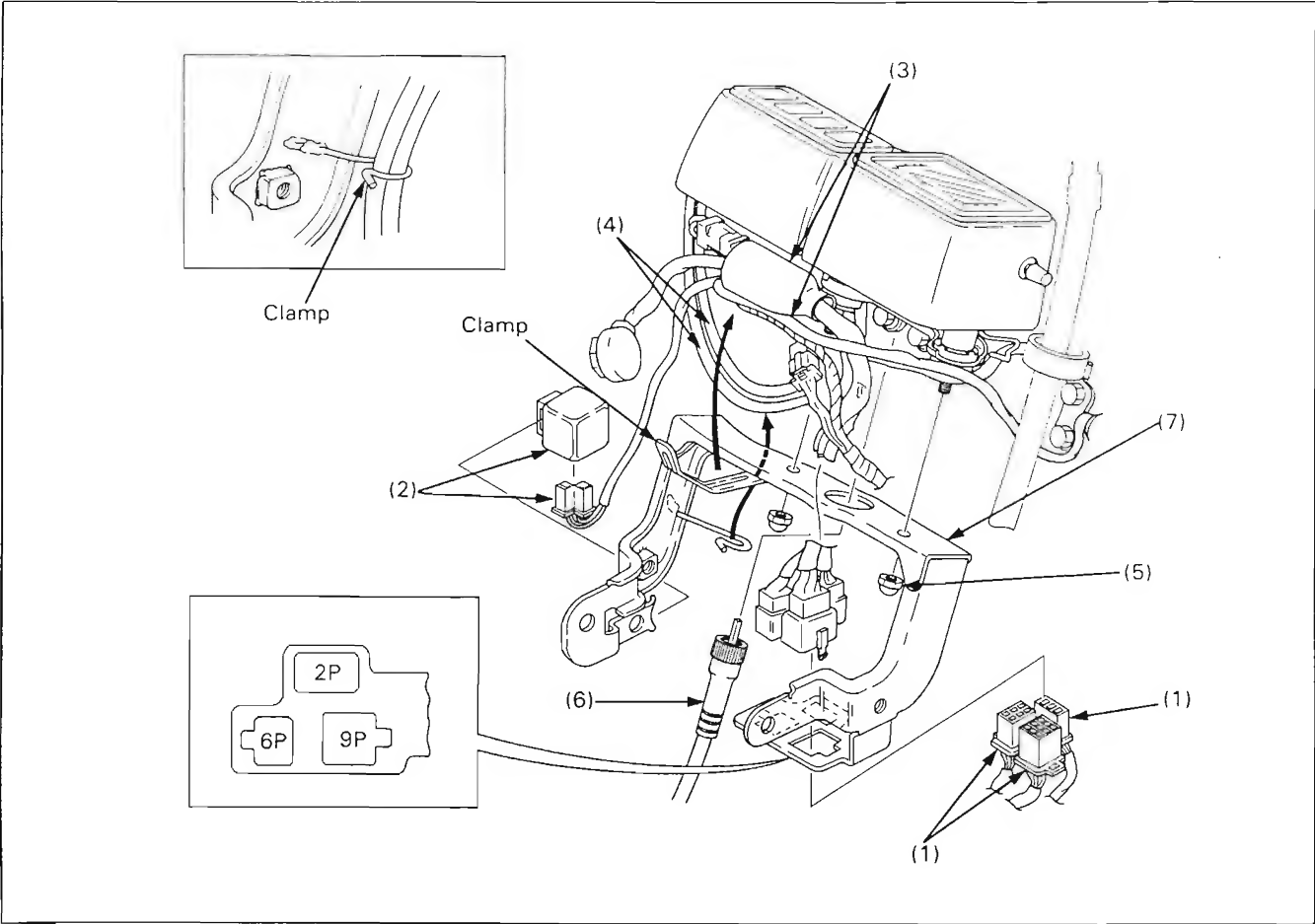
Remove the front visor (page 17-3).

Remove the bulb socket and bulb.

Install a new bulb and install the removed parts in the reverse order of removal.



Headlight Stay Removal/Installation



NOTE

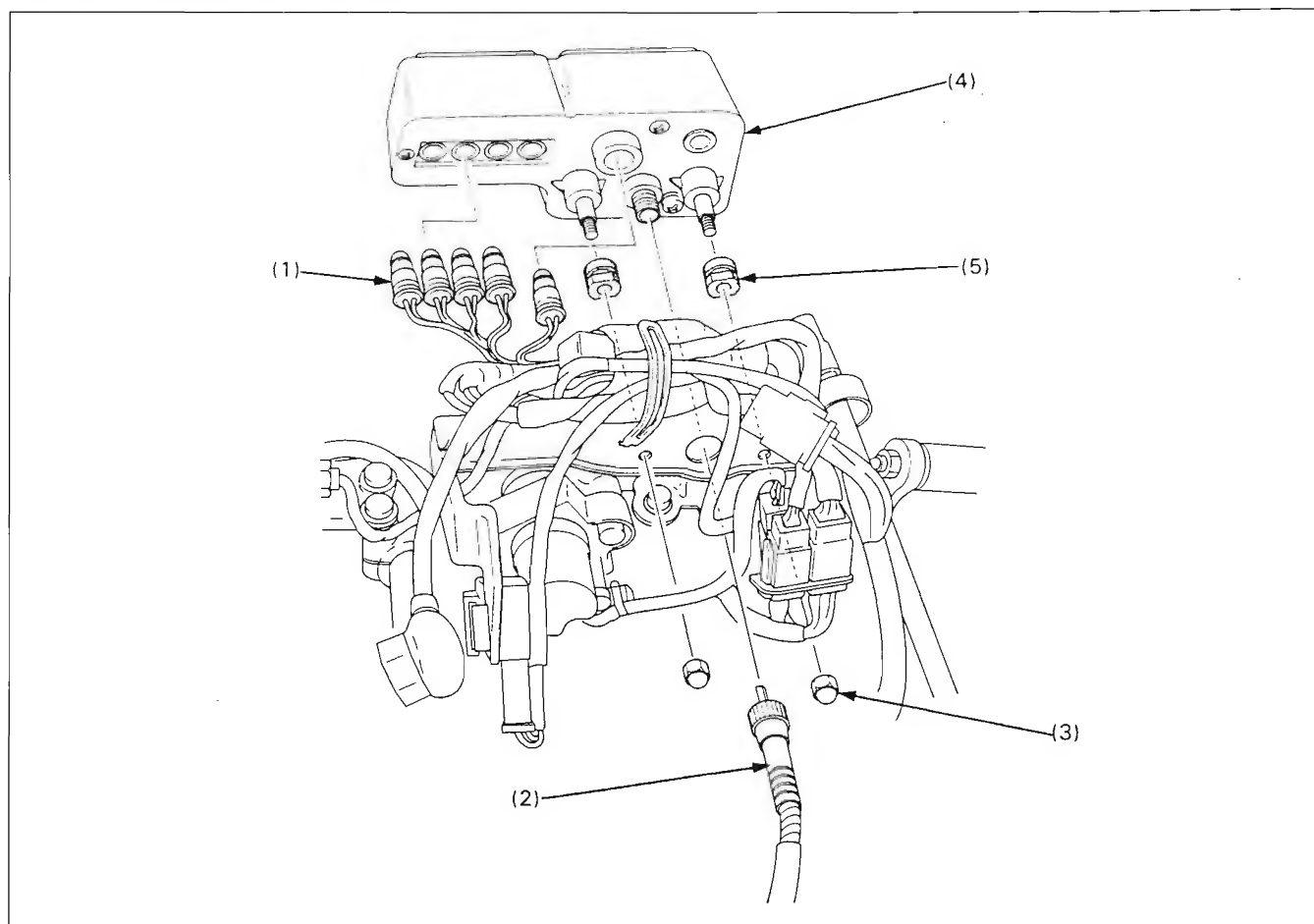
- Route the wire harness as shown in Section 1.

Requisite Service

- Headlight removal/installation (page 17-3)

Procedure		Q'ty	Remarks
Removal Order			
(1)	Connector	3	Installation is in the reverse order of removal. Disconnect the connectors at the headlight stay.
(2)	Connector/turn signal relay	1/1	
(3)	Wire harness	—	Remove from the wire clamp. Remove from the cable clamp.
(4)	Throttle cable	2	
(5)	Meter mounting nut	2	
(6)	Speedometer cable	1	
(7)	Headlight stay	1	

Meter Removal/Installation

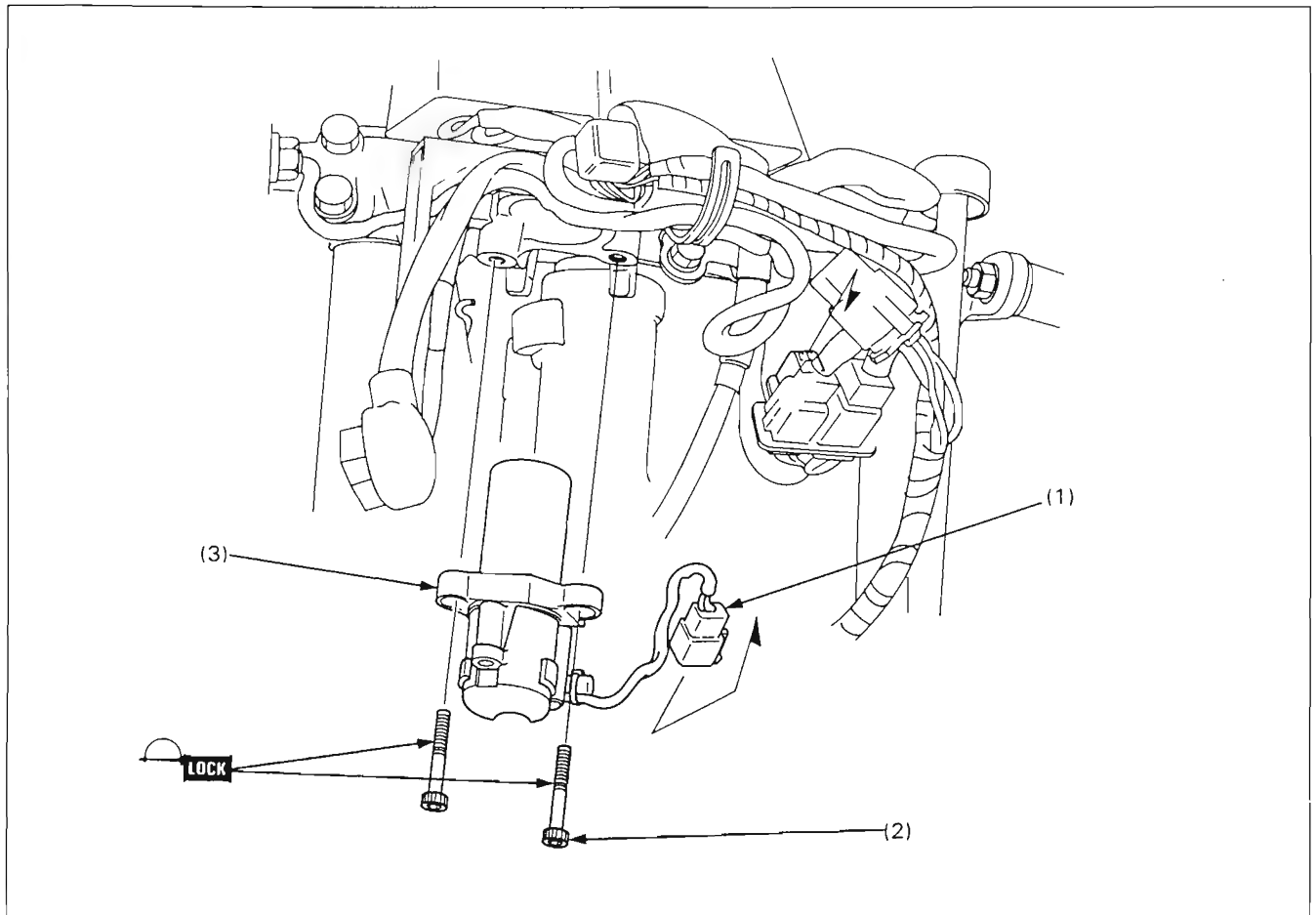


Requisite Service

- Headlight removal/installation (page 17-3)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Bulb socket	5	
(2)	Speedometer cable	1	
(3)	Meter mounting nut	2	
(4)	Speedometer assembly	1	
(5)	Meter cushion rubber	2	

Ignition Switch Removal/Installation



Requisite Service

- Headlight removal/installation (page 17-3)

Procedure		Q'ty	Remarks
Removal Order			Installation is in the reverse order of removal.
(1)	Ignition switch connector	1	Disconnect the 3P connector at the headlight stay.
(2)	Ignition switch mounting bolt	2	
(3)	Ignition switch	1	

Neutral Switch

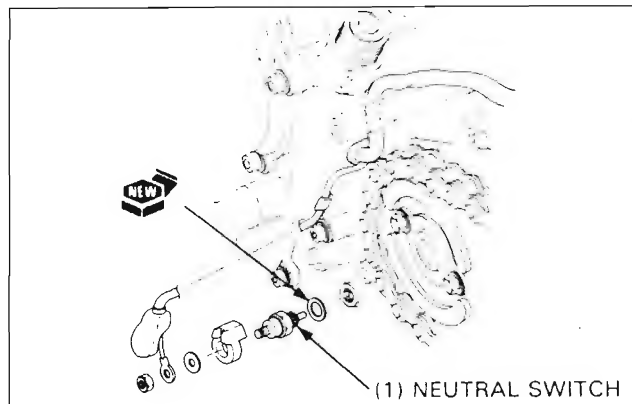
Removal/Installation

Remove the drive sprocket cover (page 6-2).

Remove the rubber cap and remove the nut and washer.
Remove the neutral switch.

Installation is in the reverse order of removal.

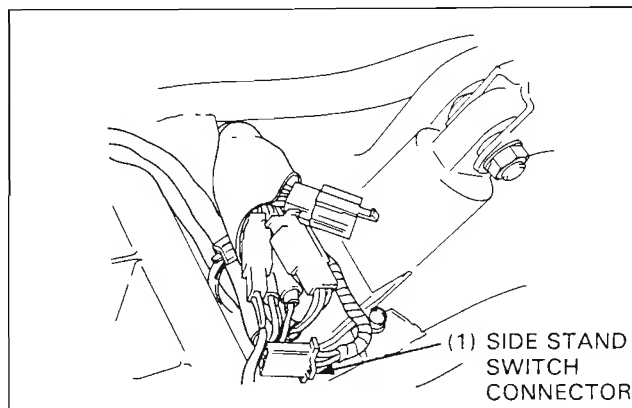
Torque: 12 N·m (1.2 kg-m, 9 ft-lb)



Side Stand Switch

Removal/Installation

Remove the seat (page 2-2).
Disconnect the side stand connector and release the wire from the clamps and bands.



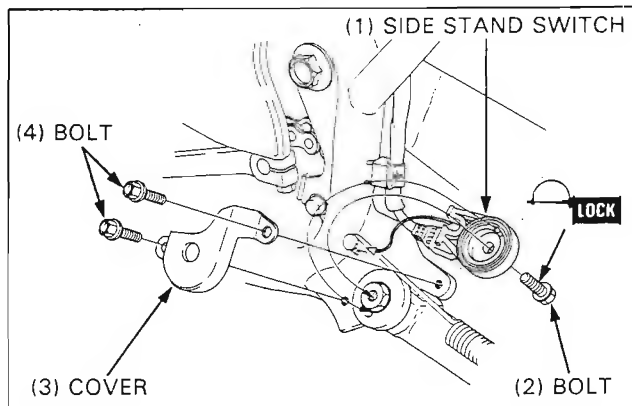
Remove the side stand switch cover bolts and the side stand switch cover.
Remove the side stand switch mounting bolt and the side stand switch.

Install the switch in the reverse order of removal.

NOTE

- Align the switch pin with the side stand hole and align the switch groove with the side stand return spring holding pin.

Route the side stand switch wire harness properly (page 1-23).



18

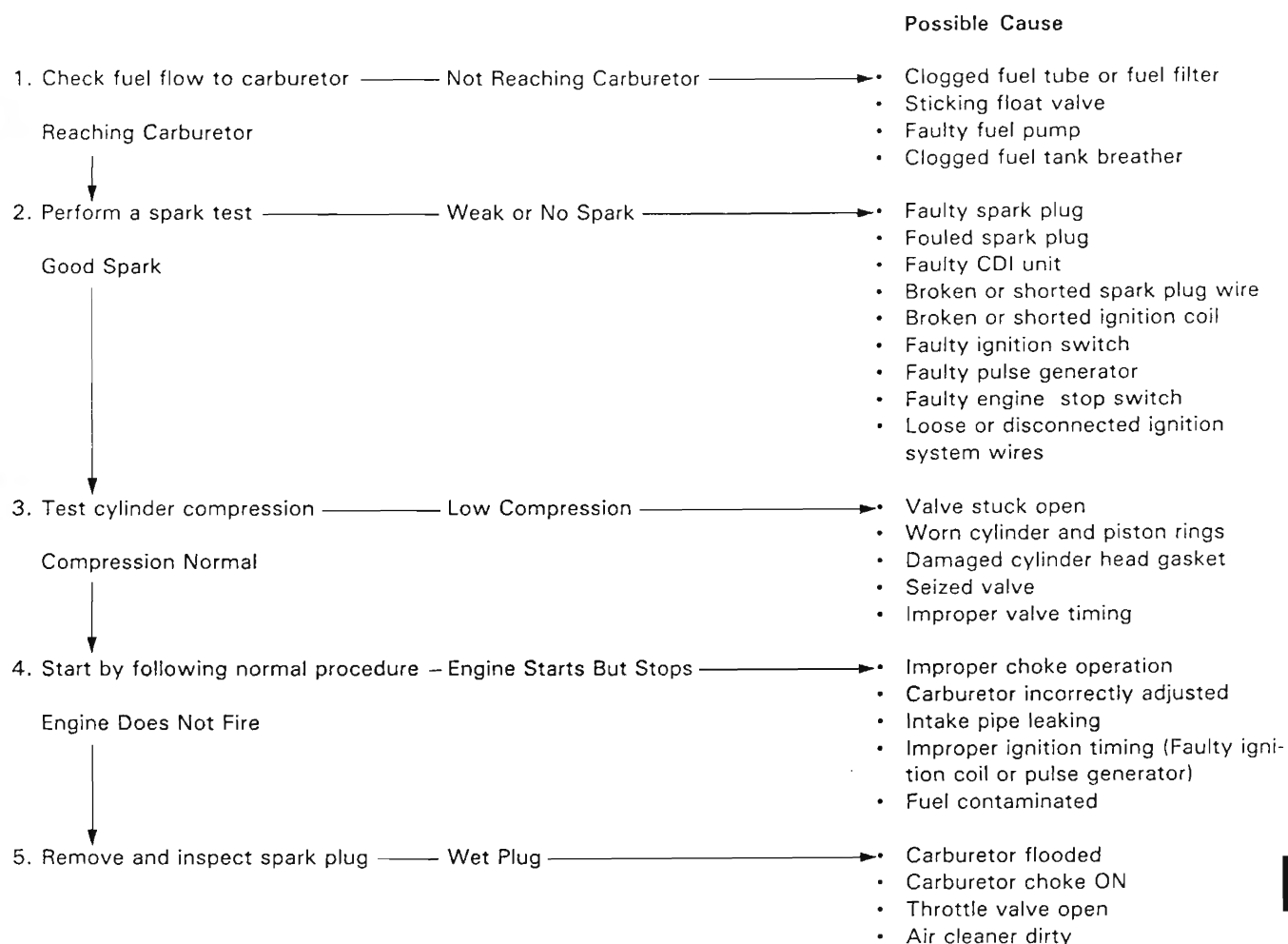


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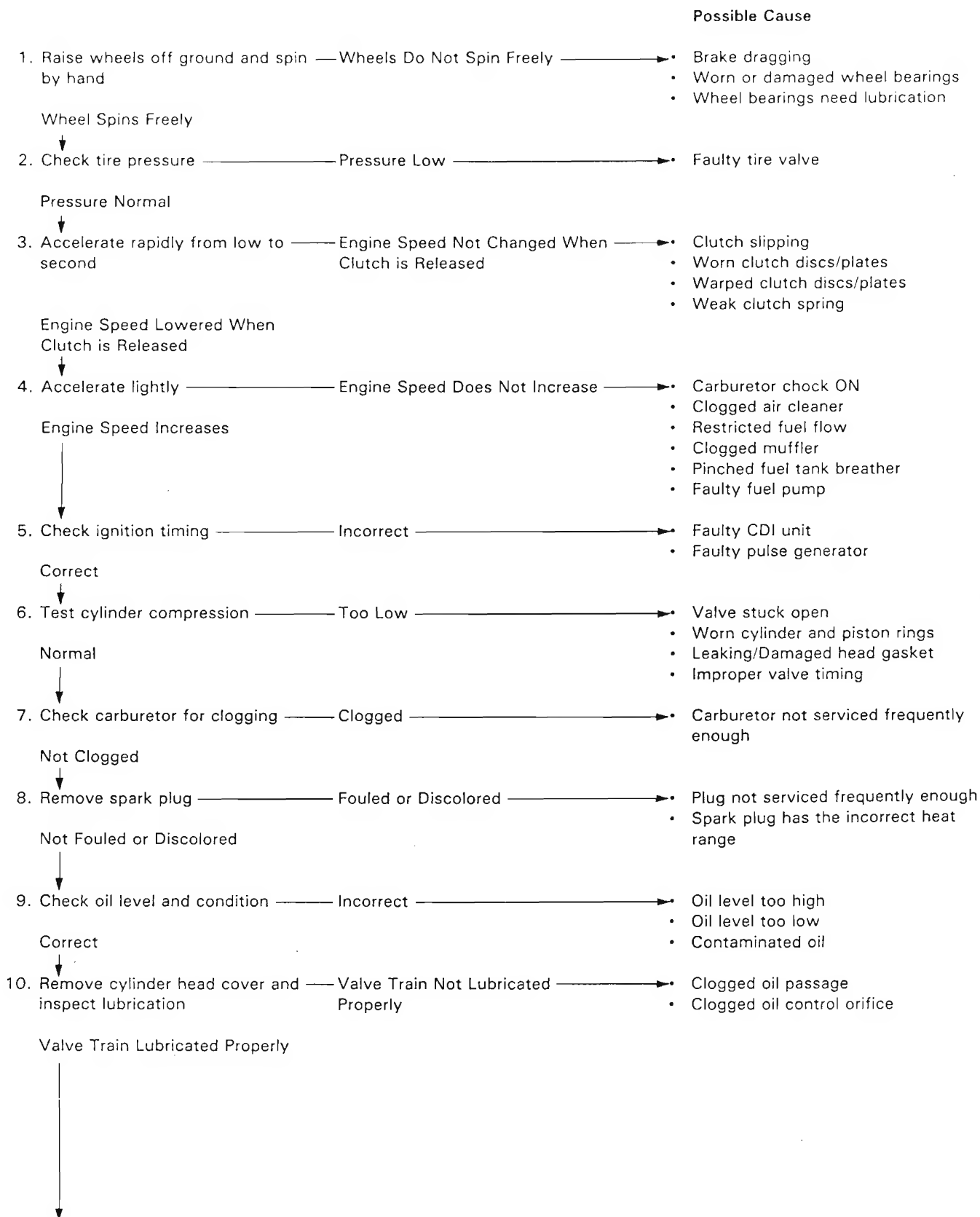
19. Troubleshooting

Engine Does Not Start or is Hard to Start	19-1	Poor Performance at High Speed	19-3
Engine Lacks Power	19-2	Poor Handling	19-4
Poor Performance at Low and Idle Speeds	19-3		

Engine Does Not Start or is Hard to Start



Engine Lacks Power



Possible Cause

11. Check for engine overheating ——— Overheating —————→
- Excessive carbon build-up in combustion chamber
 - Use of poor quality fuel
 - Clutch slipping
 - Lean fuel mixture
 - Wrong type of fuel
- Not Overheating
↓
12. Accelerate or run at high speed ——— Engine Knocks —————→
- Worn piston and cylinder
 - Wrong type of fuel
 - Excessive carbon build-up in combustion chamber
 - Ignition timing too advanced (Faulty CDI unit)
 - Lean fuel mixture
- Engine Does Not Knock

Poor Performance at Low and Idle Speeds

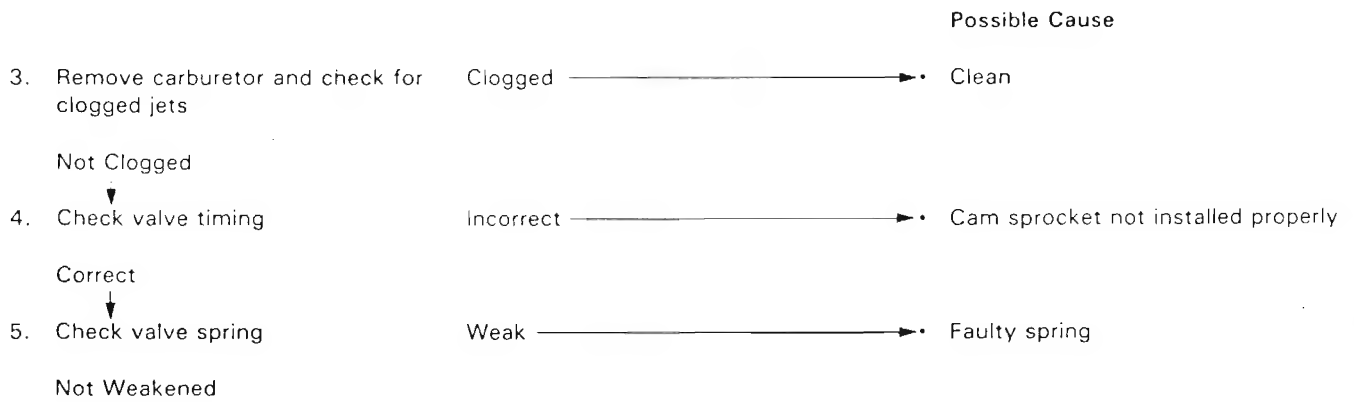
Possible Cause

1. Check ignition timing ——— Incorrect —————→
- Improper ignition timing (Faulty CDI unit)
- Correct
↓
2. Check carburetor pilot screw adjustment ——— Incorrect —————→
- See Fuel System Section
- Correct
↓
3. Check for leaking intake pipe ——— Leaking —————→
- Loose insulator clamps
 - Damaged insulator
- No Leak
↓
4. Perform spark test ——— Weak or Intermittent Spark —————→
- Faulty, carbon or wet fouled spark plug
 - Faulty CDI unit
 - Faulty ignition coil
 - Broken or shorted spark plug wire
 - Faulty engine stop switch
 - Faulty pulse generator
 - Faulty ignition switch
 - Loose or disconnected ignition system wires
- Good Spark

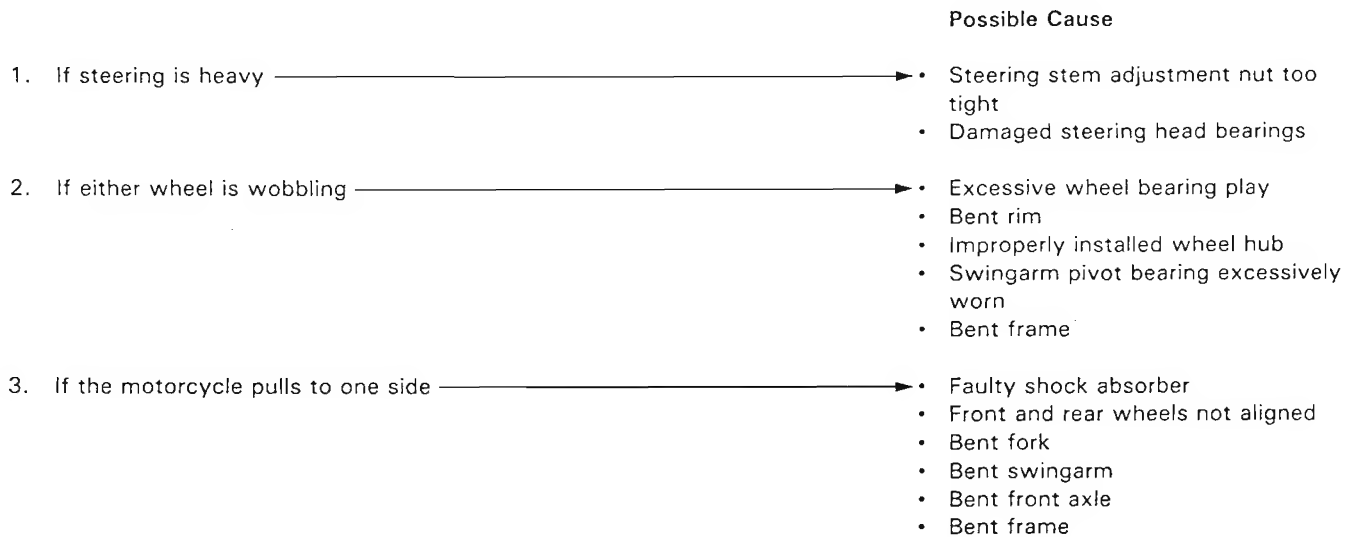
Poor Performance at High Speed

Possible Cause

1. Check ignition timing ——— Incorrect —————→
- Faulty CDI unit
 - Faulty pulse generator
- Correct
↓
2. Disconnect fuel tube at carburetor ——— Fuel Flow Restricted —————→
- Clogged fuel line
 - Clogged fuel tank breather
 - Clogged fuel filter
 - Faulty fuel pump
- Fuel Flows Freely
↓



Poor Handling → Check tire pressure



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